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Gypsum or Plaster.

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There is another compound of lime, to which we will briefly invite attention, to wit: Gypsum. This is the sulphate of lime. It contains 46 per cent. of sulphuric acid in combination with 33 per cent. of lime, and besides 21 per cent. of water existing as the water of crystallization. An ocular demonstration of the value of gypsum as a fertilizer is said to have been made many years ago by a farmer writing with his cane in his freshly sown wheat-field, in large letters, the words: "See the effects of gypsum," filling up with gypsum the little trenches formed in making the letters and then leveling them off. In the spring the passer-by saw from the road the wheat spelling, "See the effects of gypsum," and attracting attention in consequence of being conspicuously taller there than elsewhere.

How and when gypsum is valuable are matters of diverse and conflicting opinion. The action of gypsum is the *pons asinorum* of scientific agriculture. Some things, however, which will not admit of dispute, may be said.

(1.) Both the constituents of gypsum, sulphuric acid and lime, are found in the ash of all plants, and the ash of plants comes only from the soil. Now, if a soil should be deficient in both these constituents, the application of gypsum, supplying two wants, would produce excellent results and elicit the warm support and hearty praise of the farmer. But another farmer using it on land, which needed neither sulphuric acid nor lime, would fail to see any benefit and condemn it as a fertilizer. Here are two opinions, both right and both wrong. The first farmer thinks it good for his land, and so it is, so long as the natural deficiency of his soil in sulphuric acid and lime is not fully satisfied; but of course it is but little worth when this condition is attained, or has never existed. The second erroneously infers because it is not remunerative on his lands, it is worthless on all lands.

(2.) The most marked effects of gypsum are seen when it is applied to the grasses and for a reason which has already been hinted at. The heaviest demand of the grasses upon the soil is for lime, and gypsum meets this demand. Gypsum applied to a crop needing lime but little would not produce such obvious effects from the simple fact that the crop can get sufficient lime from the unhelped soil. The only safe way to determine the agricultural value of gypsum is to use it on alternating strips of land planted or sowed in different crops, and noting, in each case, the comparative effects. It is very cheap, and experiments conducted in this way would soon tell the farmer when and where to use it.

(3.) But, no doubt, the chief effects of gypsum are due to a cause yet to be mentioned. We send our ships, at least we used to do it, thousands of miles, doubling Cape Horn, to the western coast of South America, for guano, and farmers found it profitable to buy it at from $60 to $90 per ton. Now, guano is so valuable chiefly for the ammonia it contains. But the ammonia which these guanos contain is ammonia in combination, and mixed besides with other material worth little or nothing. Why is ammonia so valuable to plants? Because it is the source of their nitrogen. It is a compound of nitrogen and hydrogen. The supply of the carbon, hydrogen and oxygen of plants is abundant. The carbonic acid gas and aqueous vapor of the atmosphere furnish these three elements to an unlimited extent. But the supply of nitrogen is scant and precarious; at least, it is somewhat obscure. Again, the compounds of plants that contain nitrogen, the nitrogenous compounds briefly, are the only parts which are capable of assimilation, and conversion into the vital tissues of animals. Wheat, for instance, contains woody fibre, starch, sugar, gum and gluten. All these compounds except gluten are hydro-carbons, that is, they are made up of carbon and the elements of water; but gluten contains nitrogen in addition and is identical in composition with the nerves and muscles of animals. Brought to the liquid state by the solvent action of the secretions employed in digestion, the gluten streams with the vital current through our tissues, which pick it out to repair their constant waste, and assimilate it as a part of their own substance. The gluten that we eat in wheat then and in all other vegetable forms reappears in the body as nerves and muscles. Not so, however, with the fibre, starch, sugar, gum, the hydro-carbons. They do not remain in the body; they do not become a part of the body. They are only burnt off, maintaining animal heat, and escape back into the atmosphere from the lungs and skin as carbonic acid and water. The value then of ammonia is indicated by the fact that it is the source of the nitrogen of plants, and by the further fact that plants must have nitrogen to form the only compound they contain that is capable of conversion into the vital tissues of the animal. Hence the high price of all fertilizers containing the salts of ammonia.

Now, ammonia is always forming as the result of the decomposition of all organic substances that contain nitrogen. Being much lighter than air, its tendency is to rise, and frequently it does rise, and mingle with the general atmosphere. It is endowed, however, with a wonderful property which largely counteracts this tendency. Water absorbs 700 times its volume of ammonia. When we see a quart of hartshorn or aqua ammoniæ, we have, if the water be saturated, nearly two hundred gallons of the gas, ammonia, imprisoned in a quart bottle. People talk a great deal about ammonia, but mortal eye has never seen it. We can make the invisible gas, ammonia, and learn its properties by experiment, but we cannot see it. People talk flippantly about ammonia, and would maintain that they had often seen and handled it. Not so; they have only seen and handled its salts, as the solids, the sulphate, the nitrate and the muriate of ammonia.

When ammonia is liberated in the soil as the result of the decomposition of vegetable matter, or of putrescent manures, it is not so liable, as many think, to rise by its levity and lose itself in the atmosphere. Nature does not so bungle her work. The water of the soil absorbs it and so arrests its escape, and when this water enters the plant, the ammonia goes with it. But ammonia does escape and sometimes, to a wasteful extent, from our horse stalls and manure piles and also from the dry soil. Now, as ammonia is a matter of so much importance to the farmer, whether he considers its scant and precarious source of supply, or its necessary presence in the soil for furnishing to plants the nitrogen required for the formation of their most important compound, it is obvious that any device which will catch and hold all the ammonia that is formed on his field or farm pen, will be greatly welcomed. Such a device, cheap and simple, is gypsum. Let us see. Go into your stable on a warm spring morning. The pungent odor that greets your nose is due to ammonia. But a test better than your nose will show that ammonia is rising and escaping. A feather dipt in muriatic acid will be wreathed with a thick white smoke, the fumes of muriate of ammonia. If, however, the stalls or manure piles be constantly sprinkled with gypsum, neither of these tests will ever indicate the presence of ammonia in the atmosphere of your stable or over your manure pile. Why? Because the sulphate of lime is decomposed by the ammonia, the sulphuric acid leaving the lime and combining with the ammonia, forming sulphate of ammonia, which being a solid cannot rise and escape into the atmosphere.

We say then that sulphate of lime fixes ammonia, the most costly of fertilizing constituents, and in doing this presents to plants in the form of soluble sulphate of ammonia, the purest and most valuable plant food.

When sown upon grass, sulphate of lime, or gypsum, will arrest and fix the ammonia likely to escape from the top dressing of manure now dry, or from vegetable matter slowly but constantly decomposing in the soil, and at the same time furnish lime so much demanded by the grasses, to say nothing of the sulphuric acid, needed but not so largely as lime, in the now soluble form of sulphate of ammonia.

The application of this subject in other directions might be easily shown, but the article has already grown beyond my expectation, and hence I must here close without additional remarks.

The North Carolina Phosphates.

Messrs. Editors American Farmer:

I take the liberty of sending you a letter I have just received from Professor Dabney, about the North Carolina Phosphates. This letter was not of course, intended by its author for the press, but I do not think its interest and value will be impaired by its informal style. Upon the question of the assimilability of tribasic or insoluble phosphates by plants, there is no important difference of opinion between Professor Dabney and myself, nor between any two persons who have taken the trouble to understand the matter before they undertook to unite about it. My remarks upon the subject have been designed to promote discussion and "keep the matter before the people," as the politicians say. My ultimate purpose has been to promote the true interests of agriculture, that great business which is the basis and foundation of modern civilization. It is of the utmost consequence that the science of fertilization should be perfectly understood. I have also undertaken to fight off from the field of discussion the ignorant charlatans, who not having even the opportunity to know any thing about it, have written upon the subject nevertheless, dogmatically and magisterially, as if condescending to instruct in matters whereof their own ignorance is profound. Remarks, which I have from time to time shied at fellows of that kidney, are in no wise intended for capable and conscientious students like Professor Dabney, who are laboring to advance science and to put the farming people of the country in possession of the best information about the economies of fertilizing their fields.

M. G. ELLZEY, *M. D.*

Dr. M. G. Ellzey, Washington, D. C.

MY DEAR DOCTOR:—We thank you for your kind words about our State and our work. I send you by mail some specimens of our phosphates. No. 1 is the phosphate and lime rock from Castle Hayne; No. 2 is low grade phosphate from Duplin, (40 per cent. phosphate lime at this locality) and No. 3 is a higher grade phosphate from Onslow. These various deposits promise to be of immense advantage to the local agricultural interests.

The beds are large, easily worked, scattered through a considerable district, (monopoly is impossible) and of varied character. There is a rock there that will make an acid phosphate, and there are extensive deposits of the lime phosphate (insoluble phosphate). On the matter of insoluble phosphate, you and D. V. Frost have misinterpreted me.

I do not think any man understands this matter of the relation of the various phosphate salts to plants and soils. All we have is some experience as to results. We know that under some conditions, the soluble phosphate or phosphate which was once soluble and has been precipitated, (I believe from all the facts that I can gather, that these two are practically equivalent on the form) gives the best results. Under other conditions the insoluble phosphates produce the most lasting and paying results. Now it seems to me that both are useful. But they are different and useful in different places. The commercial value is one thing, the agricultural value is another. When a farmer says he wants a super-phosphate, that is soluble or dissolved phosphate, he ought to have it, and ought to have it at a price determined by the state of the trade, and not the agricultural chemist. The chemist may advise him, but he cannot make prices. The law under which I work, requires that the

soluble or reverted phosphate shall be determined, and its value given as fixed by the state of the trade at the time This is the reason that in my official work on superphosphate I only give the value of the soluble and reverted phosphate. The ingredients are the essence of a super-phosphate. It is for them that the farmer buys the article. If he wants insoluble phosphates, he can and will buy it, as in S. C. "Floats," or in our phosphate lime, and I will give him the trade value of that. But we must not confound two very different things. There is no one more interested in insoluble phosphates, or more hopeful of good results from them in our agriculture than I am. This, I think my work will show. I have spent much work upon "Floats," and propose to test them and our own phosphate lime thoroughly. See article in Report for 1882.

We are trying the phosphoric-carbonate just ground, on winter oats, this year. So far, the oats with it is far better than that without. It is on such crops, winter crops and grasses, and on land rich in vegetable matter, in good condition, that I have best hopes of the insoluble phosphates.

Yours very truly,

CHAS. W. DABNEY, Director.

Cost and Profits of Wheat Raising.

Messrs. Editors American Farmer:

As promised a short time ago, I herewith enclose account of cost and profits of wheat raising. The half-year interest charged for the use of some of the machinery, is due to the fact that we made the trial on seven acres, about one-half of the field that we had in cultivation of that grain.

1882.			
Oct. 2,	2	Men and team plowing two days each, 4 days @ $3 00.....	$ 8 00
" 9,	2	Men and teams dragging and cross-dragging, one day each, two days @ $2 00	4 00
" 12,	1	Man and two horses working drill, one day.....	2 00
" 12,	1	Man and cart hauling wheat and fertilizer, and helping to fill drill, one day	1 50
" 12,	10	Bushels seed wheat, @ $1.14..	11 40
" 12,		Fertilizer—200 lbs. dissolved bone and 100 lbs Kainit, per acre....	33 43
" 12,		Half year's interest on cost of drill.....	3 60
1883.			
June 2,	11	Men harvesting, one driver, six binders, two gatherers and two shockers, half day each, 5½ days, @ $1.50, (board themselves).....	$ 8 25
" 2,		2 Horses to reaper.....	1 00
" 2,		Half years' interest on cost of reaper.....	4 20
Aug. 1,	10	men tending Thresher and Cleaner, and hauling wheat from field to machine, one day each—10 days @ $1.50.....	15 00
" 1,	2	Horses to thresher.....	1 00
" 1,	2	One-horse carts and one two-horse wagon, half day each..	2 00
" 1,		Half year's interest on Thresher,	3 00
" 1,		Taxes on seven acres	4 25
Freight to Baltimore, commissions, etc., on 182 bushels.....			10 28
One year's interest on cost of land.....			21 00
			$138 91
The yield was 182 bushels, sold at $1.14 per bus., amounting to.....			$207 48
Expenses as above.....			138 91
Leaving us a profit of.....			$68 57

or within a fraction of $9 50 per acre, or 37½ cts. per bus., on a product of 26 bushels per acre.

We worked this field for the first time, in 1879. It had been in pasture for twenty years. It gave us then 70 bushels on that 10 acres. no fertilizer having been used, as it was covered pretty well with the droppings from the animals, and turned up an apparently good sod.

Now, let's see how that account stood.

Expenses as above.....		$138 91
Less Fertilizer.....	$33 43	
Less half a day's threshing	7 50	
		40 93
		$97 98
70 Bushels wheat that netted us, luckily that year $1.38 per bus.....		$96 60
Giving us on the wrong side of the acct..		$1.38

Now, if you would have asked us where our profits came in, we would have pointed out to you a pile of straw and experience big enough to ponder and live upon during the following winter.

Yours truly, F. B. S.

Steiner's Wharf, A. A. Co, Md.

Agricultural Matters Abroad.

By our Correspondent in Paris, Jan. 20.

FEEDING MIXTURES for the feeding of stock make rapid progress, since farmers club together to purchase the materials at the fountain head, through the banks which afford them accommodation; analyses at the Experiment Stations prove also a powerful means to have sound products, as the latter are analysed in sample, and then in bulk, before delivery be accepted. It is thus, that cotton cake is now making way, not only mixed with maize flour for fattening, but with various meals—pea, vetch, and barley, for milch cows. The only cotton cake in favor, is that from decorticated cotton seeds from America. It is the safest and the only cotton cake that can be employed without danger for young animals. Unbarked cotton cake, or its flour, is offered at a very low price; it should be avoided, as it contains filiments of cotton, or cellulose, which from their indigestibility are inimical to the production of either milk or meat. Thus decorticated cake contains 15 per cent. of fatty matter, and 43 of albuminoids: in the undecorticated state, not more than one-half of these per centages. A mixture much in favor for milch cows, consists of ¼ lbs. each of pea and vetches flour; half a pound of barley meal, and one pound of cake. This feed of 3 lbs. is given in moities, morning and evening, on the cattle leaving and returning to graze.

M. Quatremarin has adopted the Neilson system for the desiccation of forage on his farm in Normandy; he dispenses with steam worked machinery for the production of ventilating currents. He has invented a machine worked by an ordinary laborer, which makes 1800 to 2000 revolutions per minute; can be trundled on a wheelbarrow and set to work anywhere. The price of the machine is about 168 francs.

THE ENSILAGE OR GREEN FODDER in silos or trenches, continues to be one of the foremost questions in the agricultural world. It has now passed out of the domain of experiment and ridicule, and become a concrete fact. Yet it was only in 1852 that the discoverer of the plan, M. Goffart, of Burtin, in Sologne, first commenced his trials of the preservation of the green stems of maize in trenches made in ordinary soil. Agricultural commissions and inspections by unbelievers, have since borne unanimous testimony to the success of M. Goffart's discovery. In order to encourage a system so fraught with practical advantages, several of the local agricultural societies of France have offered prizes for the trench-preservation or ensilage of fodder. Among other reports, that by the Meaux Society deserves special notice; the tests were chiefly applied to clover, and many of the competitors commenced as disciples of St. Thomas, but ended, as is usual, in presence of palpable conviction as Zealots.

One farmer, Bénard, trenched the yield of 7½ acres of red clover in an ordinary silo 40 inches deep, 80 wide at bottom, and 120 at top, and 55 yards long. The mass was reduced two-fifths by shrinking. A second trench, 33 yards long, contained the yield of 6 acres of red clover. The commissioners found all the clover to be well conserved, of a clear brown color, giving off the alcoholic odor. The animals eat it with avidity. M. Bénard recommends that the clover be cut when in full flower, and to select a time rather humid than dry for cutting and pitting the clover; the better to exclude the air and water.

A. M. Gilles employed pits, 22x10x7 feet, destined for distillery pulp to the preservation of clover, cut between the 5th and 6th of June, and when commencing to form seed, 56 tons of stuff were pitted. It turned out well. M. Guibert trenched four acres of white clover, and obtained a medal for his results, though he expected to find his clover "only a heap of manure." He had the clover trodden down in the silo by bullocks.

A. M. Martin pitted the yield of five acres of late red clover in a trench 83 yards long. The men shook the clover, winnowed it as it were, as they spread it in the silo. The next day they resumed work late, and then covered in. The volume of the preserve lost 75 per cent., but was in an eatable condition, because the ensilage was not finished within the day commenced, and the forage was aired too much.

The Commission concludes that all clovers and aftermaths can be perfectly trenched, as well as other forage; that the trenches exact no outlay of capital; that it is at the moment of flowering such forage ought to be mown, as it then contains its maximum of vegetable humidity; that neither rain nor dew affects the pitting, but on the contrary, if too dry it does not keep so well. The employment of salt is not necessary, nor is a mixture with dry matters, cut straw, chaff, etc., required. Silos constructed in masonry and cement give good results, but no special system of trench can be recommended; that ought to depend on the region, the surface and subsoils and the climate. The chief ends to secure consist in the exclusion of air and water; the pressing of the matter in the trench with regularity, and covering it with a pressure of 8 to 10 cwts. per square yard. Cutting before trenching is not indispensable, save in the case of forage with thick stems. In nutritive value, silo food approaches most to winnowed fodder, but is more assimilative. In the case of milch cows it is a beneficial ration.

CATTLE DRINKING.—It is the usual practice with housed stock to commence the rations with hay, and then having cleaned the troughs, supply the water, to be followed next by roots, etc. This plan or order of giving food supplies, has been called in question. At the Agricultural Station of Kiel, where the cattle can drink when they please, the rations were distributed thus: twice a day, hay, cake, roots and straw. It was observed that the cows only drank after having eaten the root (mangolds), and that as soon as the special drinking trough was refilled, they commenced again to drink with avidity. Only occasionally an animal drank a little water after consuming straw.

TESTIMONIAL TO M. PASTEUR.—The Agriculturists of the Department of Loiret, have presented M. Pasteur with a splendid object d'Art—Subject, "Youth," in honor of the benefits his discovery of vaccinating cattle against the *charbon* malady have conferred upon them. Since they have practised his discovery, they fear no longer the disease. Impossible to have more striking testimony.

Farming only Profitable on Good Land.

On rich land, the nearer to the sea the better, as surplus must seek a foreign market. Land that will not average 20 bushels wheat, 10 barrels corn, 30 bushels oats and 1 ton timothy, or 2 tons clover hay, &c, and other crops in proportion, will not pay much profit.

Therefore, land unequal to this yield must be brought up to it either by bones and potash or by manure. Here comes in the general want of capital. Half a ton of phosphate and 2 cwt. potash or 10 tons cattle manure per acre, annually, will soon bring any impoverished land into fertility; or by keeping enough cattle to eat up all the grass, straw and grain, fertility will come slowly. Now this is plain sailing, and truly points the way and will not mislead the novice. No special pleading can overthrow these facts. This is independent of management or economy. Any attempt to overthrow these facts, must be self deception or an attempt to deceive the unwise. Get the land up to this point and as much higher as you can, and then, by management and economy, keep it there with sheep or cattle and raise such crops as best suits the location, and farming will pay more than 3 per cent. on the whole investment; carry production higher, and it is possible to reach 6 per cent.

Writers on farming seem anxious to place before their readers a too favorable view, calculated to deceive novices. Poor land cannot be profitably farmed without capital; with plenty of money everything is possible; with scant capital improve the land before building, build stables first, barns, houses, dwelling last. To capital the old States are preferable, the new to those without.

Large capitalists will only invest in land on speculation. We write only for small capitalists. Large capitalists invest in bonds, railroads and manufactures; they will not put out money except on mortgages and land, and there is no reason why they should, as it is easier to collect interest than work land or anything else. 'Tis to men of small means we address ourselves, men who are not afraid of work, or men who are compelled to work, and to those of small means who are willing to rough it a few years, the far west offers the greatest inducements, whereas to men with families and somewhat larger means, the old States of Virginia and Maryland offer cheap land, good neighborhood, schools and churches and other inducements, such as good water, and plenty of wood which may be lacking out on the prairies.

The land is generally poor, and will require the aid of capital, and therefore, care should be taken to purchase only sufficient land, as much only as the capital will enrich.

Land fenced and built on can frequently be bought for 10 dollars an acre. Sold because the owner had not capital enough.

Be careful not to put yourself in the same fix. Poor land is absolutely worth nothing without money to make it rich. Do not, therefore, buy more than you can enrich in a few years.

50 acres is enough for a truck farm, 100 acres is enough for a small farmer, and 300 acres enough for a considerable amount of means. $15,000 are enough for a large farmer in Maryland or Virginia.

With this amount of means a farmer can purchase the land, the stock, machinery, put up barn, outhouses and dwelling and improve his land; fences are not essential only to keep his own stock at home.

Labor is rather high, 12 to $15 per month and found; 20 to 25 and find themselves. It has become a necessity to raise good crops, to make things meet. Poor land farming will no longer answer. Tenant farmers are constantly moving, and hunting farms with some little vitality left. A.

Notes from Garrett County, Maryland.

Messrs. Editors American Farmer.

We have had seven weeks of splendid winter weather; plenty of snow. Lime, coal and wood sleds continually on the go. Most of our farmers have good teams and first class sleds. A good sled with runners of the natural bent well ironed and painted, with break included costing about 23 to 25 dollars. Over one hundred farmers in this vicinity are preparing to burn lime. About all the teams go through town and we hear the bells from 2 o'clock in the morning. We know of but one or two ox teams in this vicinity, theoretically there should be more, but the fact is horses are more available and our people know it. Crops last year were all good, corn excepted. Oats were an extra good crop and are selling at 40 cents per bushel. Corn, selected ears, selling at $1.25 per barrel; no shelled corn being offered. Wheat sells readily at $1.20 to $1.25 and rye and buckwheat 75 to 80 cts. Work hands

are always scarce. We have not a single colored man in the District. Our young men generally manage to get a small farm someway. Old farms are divided and new ones opened up. Much valuable timber is being destroyed, and soon we will hear the same lament about the Alleganies as we hear from New York about the Adirondocks.

Game is getting scarce. The summer visitor is becoming more plentiful, the one seems to work in exact ratio reverse to the other. Deer, pheasant and turkey will soon be extinct we fear.

There is room in this country for thousands of visitors of moderate means, but they must get away from the railroads.

We extend a cordial invitation to the Editor of the FARMER to visit us during the summer, and see for himself. It looks like a perpetual tussle with stumps and stones; we try to make the best of it, we don't know any better. The overflow goes to Kansas generally. They send back for buckwheat flour and maple sugar. It has been said of us that without buckwheat and huckleberries we would all starve. He that provideth not buckwheat cakes for his family is worse than an infidel.

One of our old and successful farmers tells us that years ago when Doctors were few and far between, he thought he had the itch; he "cured" for it without avail, eventually he visited a distant physician, who examined him tenderly as in such cases provided, and told him to go home and quit eating buckwheat cakes. He recovered.

E. H. GLOTFELTY.

On Using Commercial Fertilizers for Corn on Rich Land.

The February meeting of the Deer Creek Farmers' Club was held on the 9th, at the residence of Mr. R. John Rogers.

The special committee of inspection, consisting of Messrs. John Moores, James Lee and Edward P. Moores, reported that they could find nothing to criticise. Mr. Rogers' stock cattle and horses are in good condition, he has a lot of fine grade hogs, weighing probably 400 lbs. each. They saw a remarkable fine Jersey heifer and some nice calves. Mr. Rogers also has a field of wheat, of which, if anything need be said, it is that it is too good. Mr. Rogers has the faculty of farming with very few horses. He cultivates two farms with only four horses and no oxen, and his work is done in the best manner and in season.

The question announced for discussion was: "Will it pay to use fertilizers for corn on land that will yield from 12 to 14 barrels without fertilizers?" and the *Ægis* gives us the following report:

Mr. Rogers said he had come to the conclusion that to the average farmer who has to make a living by farming, it would not pay to apply commercial fertilizers on the kind of land indicated. There is always a danger of loss of fertilizers on the corn crop, from the necessity of working the land, and thus making it liable to wash, a large portion of the fertilizers being thereby carried off. In applying fertilizers to wheat the same danger does not exist. Sod is the basis of all improvement, and that can be attained better by applying fertilizers to wheat than to corn. Where land is poor of course the risk of using fertilizers is justifiable. If he had to apply fertilizers he would prefer bone mixed with some good phosphate, as one assists the action of the other. He had also had excellent results from using phosphate alone. For corn he applies the fertilizers broadcast, but it is not so liable to be washed away if drilled in. Phosphate or South Carolina Rock applied to the corn is apt to fire it in dry seasons, but with bone dust no difficulty of this kind is experienced. He drills it in as for wheat and not with corn. On a stiff sod a little phosphate will start it better. He thought 400 lbs. per acre of any fertilizer is enough to use in the row, scattering it as much over the row as possible.

Wm. Oldfield thought it would not pay to put phosphate in the hill. He would drill 300 lbs. of bone each way before planting corn, or 200 lbs. of phosphate each way. He did not know that it would pay to use fertilizers on land that would produce from 12 to 14 barrels of corn, unless he was sure of increasing the yield to 20 barrels thereby. He had used 300 lbs. of South Carolina rock with 300 lbs. Patapsco guano, and 300 lbs. of bone with the same quantity of Patapsco guano, and where the rock was applied the wheat looked better, but there was no difference in the heading. Last year he used rock on corn, but had a light crop.

James A. Hanna said if he could raise 12 or 14 barrels of corn without fertilizers he would not apply them, but save them for wheat. If the land would not raise corn it ought to be fertilized heavily. He thought very little land in Harford will produce 12 to 14 barrels without fertilizers. His average crop is 10 barrels. He mostly uses bone for corn with 200 lbs. of phosphate per acre in the hill, checkering his corn and covering it with a hoe.

A member remarked that the reason Mr. Hanna did not raise more than 10 barrels was because he checkered his corn instead of drilling it.

Thomas Lochary said if he had brought his land up to raising from 12 to 14 barrels of corn with barnyard and stable manure alone, it would pay to put bone on it for corn. If it had been brought up to that with bone he would apply no more bone without first putting on stable manure. The first application of bone always pays the best. He thought bone aided in filling out the corn.

Mr. Munnikhuysen took the negative side of the question. He would rather buy an extra quantity of fertilizer for wheat and put the land in grass. As Mr. Lochary says, the first application of bone pays best, but too much bone may be used. Phosphate will make the bone already in the land active. He would not use phosphate alone on poor land, but in connection with bone. All fertilizers, even bone, are better applied to sod, a year ahead, but many farmers cannot afford to wait so long for returns.

John Moores.—It is throwing fertilizers away to put them on land which has already had 3 or 4 tons of bone and will produce from 12 to 14 barrels of corn to the acre. It is folly for a man without money to buy fertilizers for corn on land that will raise even 10 barrels, on account of the uncertainty of the crop and the low price of corn. He had put 10 tons of fertilizers on a corn field. It did not go over the whole of it, and he could see no difference in the corn in any part of the field. It will pay to buy any good fertilizer for wheat. He thought farmers were inclined to expect too much from fertilizers when applying them to corn, without properly preparing the ground and working the corn. He had used with good results 400 lbs. of bone and 200 lbs. of good active phosphate, mixed. His plan is to run the rows out deep, sow the fertilizer broadcast in the rows, then run a harrow up and down them. This leaves a sufficient mark in the rows by which to drill the corn. If more attention were paid to saving barnyard and stable manure and preparing the ground and working the corn, farmers could do without the spring purchase of fertilizers.

Wm. Webster.—No farmer ever lost a cent by manuring land heavily, except upon buckwheat or clover, which might thereby be thrown down. Even then the benefit would be seen in succeeding crops. Commercial fertilizers are valuable only on a few crops—wheat, for instance. He would apply to that 200 lbs. of bone and 200 lbs. of phosphate per acre. If we knew what crops needed we might get better results from changing the fertilizers. He thought it would pay to fertilize land that would yield 12 to 14 barrels of corn to the acre, but he would not advise a farmer to go in debt for fertilizers to apply to such land. An application of 200 lbs. per acre would improve the corn and the wheat and grass following.

James Lee differed with a majority of the members. He thought it would pay a farmer who could raise from 12 to 14 barrels of corn per acre without fertilizers to buy them. From 500 to 600 lbs. of bone per acre will increase the crop at least 3 barrels to the acre. It would also permanently improve the land and greatly increase the wheat crop following. He prefers drilling in the bone, as for wheat.

Wm. F. Hays said that in 1882 he had used South Carolina rock for corn and left some unfertilized. The latter produced the best corn. Last season he used bone dust and dissolved bone and the difference was decidedly in favor of their use. A farmer should not look altogether to the corn crop. If he raises more corn he can keep more cattle.

Edward P. Moores said Mr. Lee had expressed his views. The last season he had raised 5 barrels more corn per acre where he used Oriole and Diamond State phosphate than where he used no fertilizer.

Thos. A. Hays said Messrs. Rogers' and John Moores' views suited him.

Benjamin Silver, Jr. was of the opinion that it would pay to fertilize land that would produce 14 barrels of corn. Land that is plowed up and fertilized must go back. If no increase is seen in the corn crop from the fertilizer the land is left in better condition for succeeding crops. He tries to alternate fertilizers, applying bone one year and phosphate the next. He had seen better immediate returns from phosphate than from bone. He plants his corn and sows the fertilizer at the same time, with an Empire wheat drill. It has 10 tubes and eight inch spaces. By driving in the wheel track the corn rows are left 10 inches apart. He believed it would even pay a farmer more than 6 per cent. to go in debt for fertilizers for his corn crop.

Geo. E. Silver said if he had a farm that was paid for and would grow all over it 14 barrels of corn to the acre, he would apply a little bone every time he plowed for corn. If not paid for, or portions of it would not raise such a crop he would save the bone for the proper portions. The first applications of the bone pay the best. After the land has been brought to a certain state of fertility much less returns are seen for the amount of fertilizer put on. In first plowing sod it is important to put the fertilizer on then rather than at the second plowing. By the second year the crop will receive benefit from the sod which by that time has rotted and become a fertilizer. He would rather apply fertilizer heavily to wheat than to corn, as it is less liable to be carried off by washing rains. He advocated a rotation of manures as well as of crops, except of stable manure and bone, which are always profitable. Bone is sometimes too long in giving a return, but phosphate gives a return with the first crop. He would rather apply phosphate to the corn than to put on bone to remain in the soil for the following wheat crop.

Wm. T. Sawyer said he had never had the good fortune to test ground that would raise from 12 to 14 barrels of corn without fertilizers, but if he had that kind of land he would apply fertilizers and try to raise 20 barrels. An application of say 200 lbs. of bone per acre in the row would probably improve the quality of the corn.

H. H. Twining said a neighbor of his, Mr. Wm. Warner, had laid off four strips of land for corn, applying respectively 500, 1,000, 1,500 and 2,000 lbs. of bone to the acre, but could see no difference in the crop. After the second crop he went to a chemist, who told him that the 500 lbs. to the acre had supplied all the bone phosphate the land needed for the crop, and the remainder did no good. Land must be fed for every crop. From 400 to 600 lbs. is enough per acre. The best results he had ever had was from top-dressing grass with Estrella guano. He had mowed six successive crops of hay from one field to which he had applied it.

David McMenamin, of Philadelphia, a visitor, said it was with crops and vegetables as with animal life. A sufficient meal may be enough. He had heard nothing about liquid manure. About every farm large quantities of it are constantly dripping away. If this were preserved in water tight pits, straw placed in them and there decomposed the product would be valuable. Manures ought to be kept so as to prevent the evaporation of their valuable qualities. A large amount of vegetable matter goes to waste, particularly the refuse of the canning factories. If all this were saved with the liquid manure and composted it would be found to be a rich manure. What has made a crop one time will do so again. The rich manures from foreign countries are all products of an animal nature, and anything that has formed an animal or plant once will do so again. The best manure for trees is the ashes of trees. The peninsula of Delaware is the finest country in the world for peaches, because the material that forms the fruit is found in the ocean and is filtering through the soil all the time. Animal matter is washed down into the rivers and gets into the ocean, from whence it is returned in salt, and phosphates. All this shows that what nature has been using as her raw material, when saved will do so again. What is allowed to go to waste on a farm, and especially in canning factories, would be just as valuable as what you buy from foreign countries.

S. R. Silver, the President, said if he had poor land he certainly would fertilize for corn, and when he got it to raise 12 barrels per acre he would not consider it poor land, but would continue to fertilize every time he plowed it. A great deal of fertility is exhausted by a growing crop and we should not plant the same field in corn again without fertilizing it. Benefit will not only be seen in the present but in future crops. Corn can be raised continually on the same land if it is fertilized liberally.

Sorghum in 1883.

There has not been a harder season for sorghum culture in the United States since the industry was first started here, than the one which recently closed. What with late spring and early autum frosts and a cool dry August, it is almost a wonder that any of it could come to maturity, and yet profitable crops are reported in many places. The Champaign, Illinois, works have done a profitable business this year. They planted 600 acres of sorghum, and the net profits of the enterprise were $31,000, or $51.75 per acre. During the busy season they worked up 150 tons of sorghum per day, and made 1,500 gallons of syrup or their equivalent in sugar. An exchange, whose editor visited the works, said that the product averaged this season nine tons to the acre. Under favorable conditions of weather and cultivation it should reach 15 tons. The company pays $2.50 per ton for cane stripped and topped, delivered at the works. The cultivation after the first few weeks is no more difficult than for corn, and with a good yield the profit is much better than on any of the ordinary farm crops. This company also has works at Hoopeston, Ill., and at Sterling and Hutchinson, Kansas, and they propose to put up machinery at several other points, where sorghum is extensively grown for the

purpose of reducing the juice to what is called the semi syrup condition. In this condition it can be sent to one of the works already established, and run through the vacuum pan and centrifugals, at any time, and thus keep this expensive machinery at work through a large portion of the year.

In a recent number of the New York *Herald* the statement is made that a single company last year, made 25,000 gallons of molasses and nearly 100,000 pounds of light yellow sugar, without any objectionable taste, and paid a dividend of thirty per cent. to the stockholders. Another company last year, made nearly a quarter of a million pounds of sugar. This year we have reports from one town in Kansas, where 7,000 barrels of syrup, and 9,000 barrels of sugar are on hand, and the works are turning out 30,000 pounds of sugar and 1,000 gallons of molasses daily. The best judges of raw sugar pronounce the sorghum equal to the best Louisiana cane sugar, and some of them have been unwilling to believe that samples from the northern cane were not southern make.

The thirtieth bulletin of the New Jersey experiment station presents some very important facts for sorghum sugar producers. On fifteen one-tenth-acre plots, the effect of nitrogen, potash and phosphoric acid in fertilizers on the yield of sugar was tested, and, with but a single exception, the only plots producing cane that contained 4,000 pounds or more of sugar per acre were those that were treated with manure containing potash; no one of these plant-nutrients told so plainly on the yield of sugar as did this one, especially in the form of the sulphate, rather than the muriate—just as it is in the case of beet sugar cultivation; further, the potash salt did its best work on plots that also received nitrogen in the dressing of manure applied. It was also noticed that it was not the largest crop per acre that contained the most sugar per acre; plots that bore three tons less of cane per acre than other plots, produced 300 to 400 pounds more of sugar per acre.

Phosphoric acid in superphosphates rather diminished than increased the product of sugar, while it did not, as was expected it might, hasten the ripening of the crop; maturity was reached on all the plots at about the same period; but at Rio Grande, N. J., where the season was wet and unfavorable for ripening, crops manured with superphosphate did mature somewhat earlier—here again as is the case in beet sugar cultivation. But one of the most important points established in this investigation was that the ordinary process of milling the cane left from 50 to 70 per cent. of the sugar in the bagasse. It is stated that experiments performed elsewhere have shown that the so-called diffusion method of extraction can be applied to save this loss, as it has been applied to beets; this process consists, in brief, in soaking the sugar out of the vegetable substance with hot water. If this expectation is realized, the defenders of the faith in sorghum sugar may well anticipate a triumph greater than any yet gained.—*Dr. G. C. Caldwell, in Utica Herald.*

Making Compost in the South.

The following is taken from the report of the Georgia Commissioners of Agriculture:

"While pea vines and lime furnish the cheapest and most effective means of restoring fertility to worn soils, and of maintaining it in those not yet exhausted, the compost of superphosphate and kainit with stable manure and cotton seed furnishes, beyond question, the most economical manure the Southern farmer or planter can apply to his crop from year to year.

"A comparison of the analyses of the Southern field pea with that of clover, which has been used as a soil-improver so long, shows very slight difference so far as either their feeding or manurial value is concerned. It is not necessary to speak of the value of stable manure and cotton seed as manure. Their value is known to all who till Southern soil. Enough extracts from experiments with compost used under varied circumstances of soil, seasons and culture, and spread over a period of six years. If the stable manure and cotton seed have been protected from waste by exposure to rain and sun, the following formula is recommended:

Stable Manure	650 lbs.
Green Cotton Seed	650 "
Superphosphate	700 "
Making a ton of	2,000 lbs.

"If the compost is intended for use on soils particularly deficient in potash, the proportion of cotton seed and stable manure may be reduced 50 pounds each, and 100 pounds of Kainit used instead. The formula would then be:

Stable Manure	600 lbs.
Cotton Seed, green	600 "
Superphosphate	700 "
Kainit	100 "
Making a ton of	2,000 lbs.

"Spread under shelter a layer of stable manure four inches thick; on this sprinkle a portion of the phosphate; next spread a layer of cotton seed three inches thick; wet these thoroughly with water, and then apply more of the phosphate; next spread another layer of stable manure three inches thick, and continue to repeat these layers in the above order, and in proportion to the quantity of each used to the ton, until the material is consumed. Cover the whole mass with stable manure or scrapings from the lot, one or two inches thick. Allow the heap to stand in this condition until a thorough fermentation takes place, which will require from three to six weeks, according to circumstances; dependent upon proper degree of moisture and the strength of material used. When the cotton seed are thoroughly killed, with a sharp hoe or mattock, cut down vertically through the layers; pulverize and shovel into a heap, where the fermentation will be renewed, and the compost be still further improved. Let it lie two weeks after cutting down; it will then be ready for use.

"The following plan of mixture gives equally satisfactory results: Mix the cotton seed and stable manure in proper proportion, moisten them with water, apply the proper proportion of phosphate and mix thoroughly, shoveling into a mass as prepared."

Alfalfa.

Whenever Alfalfa (lucerne) can be retained in the soil for a series of years, it is a most valuable crop for dairymen to raise; first, because it is capable of yielding a large amount of forage. Three crops a year, of two tons each, are a common yield in California, and two crops in a season can be counted on further North. These are much larger returns than it is customary to harvest of hay on ground of the same quality. Then it is a surer crop than hay. Most of the grasses have only fine fibrous roots, which extend but a short distance into the soil, and are soon dwarfed by drought. Alfalfa has long filiform roots, which penetrate into the soil to great depths, and supplies itself with moisture below the dry surface soil. Second, because it is a food very rich in life-sustaining properties. It belongs to the family of clovers, and partakes of their peculiar tendency to develope albuminous matter in their herbage. Albuminous or flesh-forming matter regulates, to a large extent, the flow of milk. The more of it there is in the food of milch cows, the more milk they give, all other conditions being equal. Wherever Alfalfa has been used for dairy cows, its tendency to stimulate a large flow of milk has been noticed. For this purpose, and for general use, it requires to be cut early, while immature, as if left too long, the stems become too woody, hard, and indigestible to be of much value. On account of its abundance of flesh-forming matter, it makes a most valuable accompaniment for fodder corn, when fed from the field or from a silo, with an excess of fat and heat-producing elements. The two together act as complements of each other, and make perfect and economical ration, and avoid the loss occasioned by feeding either alone. Corn ensilage would soon be in much higher repute than it is if it was accompanied with something that would make it a complete ration, instead of the one-sided food it is when fed alone, and there is nothing better for this purpose than the clovers, of which Alfalfa is the richest, and largest grower. But it cannot be grown everywhere, as it kills out when too much exposed to hard freezing; yet, wherever it can be grown, its cultivation ought to be encouraged as a cheap and superior food for milch cows.

The Farmers' Convention of Central Maryland.

This meeting brought out the largest assemblage of Maryland farmers gathered for many years, the attendance being largely of representative men from the several counties embraced in the Convention. The gardeners and market gardeners were out in force to hear Mr. Henderson and the cattle feeders to hear Col. Beverly. It was a matter of general regret that Dr. Ellzey was not present.

The officers were as follows: President Wm. Webster, of Harford; vice-presidents, Thos. S. Iglehart, Anne Arundel; Wm. Baldwin, Harford; Henry O. Devries, Howard; G. S. Haines, Carroll; Samuel M. Price, Baltimore county. Secretary, Wm. B. Sands, Baltimore county.

Mr. Webster, on taking the chair, said:

"Gentlemen—Allow me to express my thanks for the honor you have conferred upon me by calling me to preside over this convention of Maryland farmers, and to say that I appreciate it the more because I regard it as a compliment to the Deer Creek Farmers' Club of Harford county, of which I am a member. I hope our proceedings may be pleasant and agreeable and of benefit to the farmers of the counties we represent.

Mr. Peter Henderson was first introduced and read a paper on Market gardening which we give elsewhere.

After the conclusion of his paper, Mr. Henderson was questioned on many topics.

In reply to a question he said land could not be kept up to a high state of fertility by the use of concentrated fertilizers, but about one-third should be laid in clover and timothy every year. Concentrated manures may have the fertilizing properties but they have not the same mechanical operation as stable manure.

Mr. James Pentland said he had seen the White Plume celery in New York and was amazed at its delightful nutty flavor and beautiful appearance.

Col. Robert Beverly, of Fauquier county, Va., President of the National Agricultural Congress, made an address on "Feeding Cattle." He said he feeds 1,300 cattle. His method differs entirely from that pursued by Maryland graziers. The cattle are never stabled. The corn is cut up and the fodder, ears and all, fed to the cattle. Hogs are allowed to follow the cattle and are readily fattened with the refuse. He was opposed to feeding ground corn to cattle, his experience being that whole corn is more digestible. Where cattle have been raised by hand the barn is unquestionably the place to keep them, but where they are not accustomed to being housed confinement is irksome and they will not thrive for six weeks after being put under shelter. Ensilage is unwholesome for horses but excellent for cows. Col. Beverly asked the co-operation of the meeting in getting an appropriation from Congress for an extension of the Signal Service for farmers, and held that there should be an inspection of beef for market. He said he had found it difficult to get anything from Congress for farmers, notwithstanding agriculture comprises 57 per cent. of the property of the United States and pay more taxes than all the rest together.

After some remarks by Col. Beverly, who urged the convention to assist him in procuring legislation of the kind, a resolution offered by Mr. T. B. Todd, of Baltimore county, was adopted as follows:

Resolved, by the Farmers' Convention of Central Maryland, assembled in the City of Baltimore, this 22nd day of February, 1884, that the extension and adaptation of the benefits of the Signal Service to the necessities of the farming and planting interests, as provided for by H. R. Bill, No. 4292, is a measure which deserves and hereby receives the hearty endorsement of this meeting, and, that the Secretary be requested to transmit copies of this resolution to the Committees on Agriculture of the Senate and House of Representatives.

Mr. A. B. Davis, of Montgomery county spoke of the improvement in land in that county since grazing had been commenced.

Mr. Howard Griffith, member of the House of Delegates from Montgomery, indorsed the views of Colonel Beverly as to the necessity of an inspection of beef cattle. A bill for the inspection in Baltimore of beef cattle, which has been presented to the Legislature, was read to the convention at the request of Mr. Griffith. Section one says it shall be unlawful to sell, expose for sale or give away for consumption as food within the city of Baltimore, or within three miles thereof, any portion of the carcass of meat cattle which before slaughtering shall not have been inspected and passed.

Remarks were made by Col. Beverly, Messrs. Jas. Lee, Thos. A. Hays, Col. W. S. Franklin, J. M. Street, Dr. F. W. Patterson and others when a motion to approve of the bill as read was voted down, and the matter was laid on the table by a large vote.

Mr. H. O. Devries, of Howard, offered a preamble and resolution, which were adopted, as follows:

"WHEREAS it has become apparent that slaughtered beef from other States is thrown upon the markets of Maryland, dangerous to the health of our citizens and damaging to our feeding interests: Therefore,

"*Resolved*, That the convention of farmers now assembled in Baltimore city, do earnestly request our General Assembly, now in session, to grant us such protection by legislation as the necessities of the case require."

A letter was read (given elsewhere in this issue) from Dr. E. Lewis Sturtevant, giving his views on the benefits to be expected from the operations of Experiment Stations.

Hon. A. Bowie Davis, offered the following:

WHEREAS, the establishment of Agricultural Experiment Stations in other States has been attended with uniformly great benefits to the agricultural interests of those States; and,

WHEREAS, the peculiarities of soil, climate and productions of Maryland, are such that the results obtained in other States, however valuable they may be, are not always available for our peculiar climate and productions: and,

WHEREAS, the State of Maryland now owns in the Arsenal property at Pikesville, Baltimore County, buildings and land admirably adapted and well situated for the purposes of an Agricultural Experiment Station.

Resolved, that this Convention heartily favors the movement for the establishment of an Agricultural Experiment Station by the State on the Pikesville Arsenal property, and that this property so excellently suited to this purpose in which the whole community is interested, should not be diverted to uses by which but few could be benefitted.

Mr. Plowman, of Harford, (a member of the Committee on Agriculture in the House of Delegates,) said he thought the work

ought to be done at the Agricultural College. Capt. Smith, its president, had said, with five or six thousand dollars more a year it could be done there. There was no knowing how much it might cost at Pikesville. He was in favor of making at least a start at the college.

Col. Allan, of Baltimore county, took the floor and made a very effective address. He showed that the work of an Experiment Station and a college were widely different, and that to put such work on a college would be to injure both. Connecticut and North Carolina had each removed their stations from under the control of colleges and made them independent institutions.

The cost to fit up the Pikesville property and run the station there, would be no greater than to do the same thing at the college. Each possessed only buildings and land, Pikesville, indeed, having buildings well suited to this use, substantially built, easy and convenient of access.

C. Lyon Rogers, said the matter of cost seemed to be the one influencing the member of the Legislature from Harford, and argued that this ought not to be considered, when the advantages to be gained were considered, and the fact that the farming class asked for this institution and were long since disgusted with the Agricultural College.

Mr. Henry Kennard, said that the college was the biggest humbug in Maryland. It had cost the State hundreds of thousands of dollars and produced no results worth three cents.

The meeting then adopted with practical unanimity the resolutions, only one or two faint "noes" being heard.

The discussion of agricultural topics was next taken up. "The Feeding of Cattle" being first. Mr. James Lee, of Harford; Mr. Chas. T. Cockey, of Baltimore County; Mr. Chenoweth, manager for Mr. P. H. Walker, of Baltimore county, took part in the discussion.

Mr. Chenoweth said that, on the 20th of November, 1882, he put up 173 cattle, leaving 19 running out. The cattle in the stables were fed 8 barrels of corn a day, and the 19 in the yard received 3 baskets full of corn a day. The 173 cattle were fed 26 days, on short corn, then on corn and cob crushed, with flaxseed meal, sometimes bran, and plenty of cut fodder. They were sold on the 6th of February, 1883, to be delivered 25 or 30 a week. The 19 were stabled as the others went out. The feed and labor cost $2,844. The cattle weighed when bought 175,195 lbs., and gained 29,495 lbs., or a net gain of 1¼ lb. per day on each steer. They cost $1.15 per 100 weight and sold for $5.25. The total cost was $7,133.90 and the increase was $3,584.27, leaving a net profit, over feed and labor, of $690.27.

Mr. James Lee said his cattle last year gained an average of 325 lbs. from October to April.

BEST PLAN OF MANAGING MANURE.

C. Lyon Rogers said his plan was to get it out as soon as possible and apply it broadcast, so as to avoid extra labor, which more than compensated any loss from evaporation. On rolling fields he piles up the manure and applies it before planting corn.

Mr. Wm. C. Haviland's practice has been to apply manure to grass one year before plowing for corn.

Mr. A C. Scott, of Baltimore county, hauls out manure as fast as made, top-dressing it on grass.

Henry Kennard, of Baltimore county, thought it a question whether winter or spring is the best season to apply manure. If applied in winter he was afraid the strength would be washed out.

Mr. Gerard Emmert, of Baltimore county, uses most of his manure in top-dressing grass, continuing until the grass is too high to go on the land. He uses a manure spreader, with which two boys can spread two acres a day, applying 15 cart loads to the acre. It spreads any kind of manure and makes it go farther than in any other way.

Mr. H. O. Devries, of Howard county, gave his experience on the subject. He had hauled out manure in piles to remain until wanted, but without protecting it, and that was a great failure. He had raised straw but never a heavy crop of wheat from an application of manure to wheat ground. He had hauled out some long manure on part of a field, and plowed it down. The remainder of the field received a dressing of short manure on the surface, after plowing, and the result was in favor of plowing manure down. The best results in Howard and Frederick counties are obtained from applying manure to corn ground in the spring of the year, and no more than can be plowed down. He had been impressed with the advantage of spreading straw, a coating of which, 6 or 8 inches thick, in the spring is equal to a good coat of manure.

Mr. J. P. Silver, of Harford county, wanted to hear the experience of his brother farmers on the use of boned or limed land.

Mr. Devries said that if bone and lime were applied together it would be better to give the money spent in bone to some charitable purpose. He would apply bone first, get grass growing and then apply lime. Raw bone is a better investment than dissolved bone, except where a quick return is needed.

In reply to a question, Mr. James Lee said his wheat crop, the last five years, had averaged 35 bushels. His experience was like that of Mr. Devries in applying barn yard manure to wheat.

Prof. Warfield, Registrar of the Maryland Agricultural College, advocating saving liquid manure and applying it to grass and wheat. He considered manure that has been protected from the weather worth five times as much as that thrown out.

Mr. J. P. Silver, of Harford, said his observation and experience were against the use of bone on land that has recently been limed. If you want to have good results, put manure out as soon as you can after the heat of summer is over, and spread it as soon as you haul it out, even on frozen ground. He preferred bone dust in small grains. When pulverized you don't know what you are getting. His average crop of wheat is from 15 to 25 bushels, and of corn from 14 to 16 barrels.

Mr. John D. Mathews, of Baltimore county, advocated top-dressing manure on sod. Whenever you can get a growth of vegetable matter you can raise anything.

Mr. John H. Herbert, of Howard county, said that 12 years ago his hands had by mistake spread 100 bushels of oyster shell lime on half an acre. The crops have been deteriorating ever since The greatest benefit is derived from top-dressing from August to December. He had top-dressed wheat, with no advantage to the wheat, but of benefit to the grass following. He did not regard it as economical to use bone on land that has been recently limed. He had used straw with fine effect to protect wheat during winter.

Mr. Vincent related the successful result of a heavy application of lime to new ground.

Dr. C. A. Leas, Baltimore county, replied to the query whether it pays to send milk to Baltimore dairymen. He said that sending milk to Baltimore for 14 to 18 cents a gallon after finding the cans and paying freight, is unprofitable. His farm commenced paying better when he quit that branch of the dairying business.

On motion of Mr. S. Baldwin, of Anne Arundel, it was

Resolved, that when this convention adjourns it be to meet again in the City of Baltimore, on 23rd of February, 1885, and, in the absence of any central body representative of the farmers of the State, that the public spirited societies of Baltimore and Harford counties be requested to invite all the farmers of the State, from Worcester to Cecil, and from Garrett to St. Mary's, to send delegations on that occasion, to meet together, to counsel together and to act together, for the advancement of the agricultural interests of Maryland.

The thanks of the meeting were voted the gentlemen who had delivered addresses, and it then adjourned.

Benefits of Agricultutal Experiment Stations.

Wm. B. Sands, Esq., Baltimore.

DEAR SIR: I should be very glad to accept your invitation to be present at your meeting on the 22d, could I do so consistently with my other duties, as I have an earnest desire to encourage by every legitimate means the establishment of Experimental Stations. I have just returned from Pennsylvania, where I have been for furthering this object in that State. But the calls upon me are so numerous, and the necessities of employments at home must be my excuse for failing you. I trust that you will consider the matter carefully, intelligently and wisely, and I cannot doubt your conclusion. * * * The work usually as assigned to an Experiment Station is fertilizer control, care over the agricultural capabilities of the State, and direct experimental work. The first of these, fertilizer control, has speedily proved of great material advantage. The second has proved advantageous in New Jersey in the examination of marls and the nature of fertilizing products, as also in North Carolina. The third, or the experimental portion, does not give as speedy results, as it is necessary that work should be pursued through several seasons in order to understand the effect of seasonal changes.

The whole subject of fertilization and plant growth in their relations, is of importance to the practical farmer. Any man can apply fertilizer to land, but it requires instruction, or else a gaining of knowledge through experience, in order to get this fertilizer applied, into the plant; and this is a subject which underlies all considerations of practical and profitable crop-growing. The present state of the case may be safely expressed as follows: The farmer who uses fertilizer for the first time without taking warning from the experience of his neighbors will rarely make a success, certainly not as a rule. If the fertilizer is to take the place of barn-yard manure the farmer who has used fertilizer for many years, and who has become acquainted with the how-to-apply-in-order-to obtain-results, finds that its use becomes to him profitable, and the tendency is ever towards increasing the net profit of his farm through increased purchase of fertilizer. Now, an Experiment Station can give to the farmer directions founded upon the accurate principles of science, which if followed thoughtfully will enable the farmer to increase his crops profitably through the purchase of manures from off the farm. The directions can be given from the results of careful and close investigation into the rooting habits of plants, and the relations between moisture, temperature and the food supply. For instance, tobacco, in the Northern States, certainly, is an extremely shallow rooting plant. The rational process of manuring is to apply fertilizer very near the surface within the region of root pasturage Experimental tests by placing upon competitive plants fertilizer upon the surface and low down in the soil, adds practical illustration and renders certain what before might be considered theoretical; and so I might go on and illustrate from other agricultural plants, but yet this whole matter requires investigation, and the larger the number of investigators and the more distributed over different climates, the speedier and more certain will be the practical conclusions.

The whole matter of Experiment Stations and the how-to-experiment is yet in its infancy and must be developed through a series of evolutions which shall require time as an element. The more intelligent the farmer the more favorable is he towards a public attempt for founding a station, and the more the matter is investigated and brought into close relations with actual farming, the more important it seems; and your support in Maryland, as has been the case elsewhere, must come from the more intelligent portion of the community and from those who are willing to give to the subject some portion of their thought.

Very truly yours,

E. LEWIS STURTEVANT.

Geneva, N. Y., Feb. 15, 1884.

Pleuro-Pneumonia Legislation.

In the Maryland Legislature the committee on hygiene has reported favorably to the House of Delegates a bill to prevent the spread of infection or contagious diseases among the live stock of the State. It provides that the Governor shall appoint a veterinary inspector, who shall be a graduate in good standing of some recognized school of veterinary medicine, at a salary not exceeding $1,000 a year and traveling expenses, whose duty it shall be to visit the stables of the city and counties wherever he has reason to believe contagious or infectious diseases may exist; who shall have the power, with the consent of the Governor, to quarantine such animals, and to prescribe such regulations as he may deem expedient to prevent the spread of the disease, in the performance of which duty he is to have the co-operation of the law officers of the city and State. The inspector shall also prescribe regulations for the destruction of animals affected with the diseases and for the proper destruction of their hides and carcasses, but no animal shall be destroyed unless first examined by him. The refusal of cattle owners to give the inspector access to their premises, or a concealment of such diseases, or the sale of an animal known to be affected with the disease, is punishable by a fine of not less than $50 nor more than $100 for each animal. Including the salary and the traveling expenses of the veterinary inspector, the amount appropriated for veterinary purposes is not to exceed $5,000 a year, but in the event of the outbreak of an epidemic among the live stock of the State, it shall be the duty of the Governor to appoint such assistant inspectors as may be necessary to promptly suppress the epidemic and to fix their pay.

The Bill for establishing a Bureau of animal industry, which includes provisions for preventing the spread of pleuro-pneumonia, passed the House of Representatives, February 28, by a vote of 155 to 118. It provides that the Commissioners of Agriculture shall organize a bureau of animal industry and appoint a chief thereof, whose duty it shall be to investigate and report upon the number, value and condition of the domestic animals of the United States, and also the causes of contagious communicable diseases among them, and the means for the prevention and cure of the same. He is authorized to appoint two competent agents, whose duty it shall be to report upon the best methods of treating, transporting and caring for animals, and the means to be adopted for the suppression and extirpation of contagious pleuro-pneumonia. The bill further provides that the Commissioners of Agriculture may expend so much of the money appropriated by this act as may be necessary in paying for the animals it is deemed necessary to slaughter, and in such disinfection and other means as may be necessary to extirpate the disease. The authorities of the States shall pay one-half of the expense of the animals it is deemed necessary to slaughter, and one-half the cost of disinfection and care of the herds of cattle. It prohibits the transportation from one State to another of any live stock affected with any contagious or infectious disease, and provides for the prosecution of any person violating this prohibition. The sum of $250,000 is appropriated to carry into effect the provisions of the bill.

Holstein Cow Carlotta, H. H. B., No. 1266.

The fine engraving which we publish in this issue is a life-like representation of this cow, imported and owned by Messrs. Smiths & Powell, of Syracuse, N. Y.

She is of large size, fine in form and very stylish. Calved in March, 1879, she is now coming five years old. She was imported in 1880 when a yearling. She gave as a two-year old 35 lbs. 14 oz. of milk in a day, 1,018 in one month, and 7,227 lbs. 10 oz. in 10½ months. As a three-year old, she gave 57 lbs. 8 oz. in a day, 1,637 lbs. 8 oz. in one month and 7,824 lbs. 14 oz. in six months and 11,886 lbs. 4 oz. in one year. She has given as a five-year old, to February 1, 1884, 8,886 lbs. 13 oz. in seven months and thirteen days, and will make a large year's record. When three years old she make 12 lbs. 1 oz. of butter in one week on winter feed.

She won first prize at the New York State Fair, in 1881, as a two-year old, and was one of the herd that won the gold medal in 1882 and 1883. She is a good specimen of the breed which is now attracting so much attention.

HOLSTEIN COW CARLOTTA, H. H. B., NO. 1266.

Poultry Yard.

[The following are from the *American Poultry Yard.*]

A Useful Hint or Two.

We were talking recently with a very successful poultryman who lives in Southern New Jersey, and in the course of his conversation he remarked that he fed his *chickens well from the start.* That, he said, was one secret of his success: His opinion is that no subsequent feeding, however good, can make up for poor feeding the first two months. And we think our friend's head is quite level on that point.

He is very successful also in getting his pullets to lay in the fall and winter—as well, in fact, as in spring. He attributes his success in great part to a plentiful use of charcoal. He gives his laying stock soft feed three times a week, and in this he puts plenty of pulverized charcoal, also salt, and occasionally a little pepper or ginger. This he gives in the morning and always a little warm. He believes in the charcoal, and says he has always observed that the people in the pine regions, where the charcoal is made, especially the charcoal burners are hardy and robust. He fancies that in some way the virtue of the pine is still retained in the charred wood, and it is this, in part, that benefits the fowls.

While our friend may be wrong in his inference on this point, his experience corresponds with that of many others in respect to the beneficial effect of charcoal on the health and thrift of poultry.

Whatever theories a man may hold, when he is successful in his calling, his *methods* are worthy of consideration.

Successive Crops of Poultry.

Where labor is not too costly, or where, as in a large family, no account is made of the labor of children, it is possible to obtain a large income from a comparatively small flock of fowls. This is accomplished by raising successive crops of chickens during the season. The first crop should be out of the shell by February 1st, and the last installment by June 15. We are speaking now of raising chickens for market. The best hatched will be ready for market by the first of May, and the last by Thanksgiving. The old fowls should be disposed of in June, or as soon as their services as layers and mothers can be dispensed with. The successive broods should be disposed of just as soon as they will command a fair price. The earliest will be in marketable condition in from eight to twelve weeks. They can never be more profitably disposed of than at that age, for as they increase in size prices decline, and so the extra food bestowed on them is actually thrown away. By this method of promptly disposing of the chicks as they mature, the premises do not become overstocked and the soil of the runs foul, as is the case when large flocks are kept throughout the season to be sold at the holidays. By selling off the old stock in July, the greatest possible profit is obtained from them. After this date they lay but few eggs, begin to moult in the fall, and perhaps lay not a single egg before winter. The extra pound or two of flesh they put on does not pay for their keep. By killing off all surplus stock by Thanksgiving the yards are cleared out, and an opportunity is given to feed and care well for the few that are to be kept over for next season's breeding. The extra care these few receive will induce early laying and broodiness in the spring, and these two points are essential to success.

We have only outlined a method that is followed by many in the Eastern States, who have been successful in making money by raising egg sand poultry for the food market. The plan will have to be modified according to locality and other circumstances.

Artificial Rearing of Chickens.

The rearing of chickens in quantities by artificial means has not as yet been a pronounced success in our day. But this by no means proves that it cannot be done. Plans that have been tried thus far have been faulty in some particular, but will doubtless be corrected in subsequent attempts in this line of enterprise. While there are many difficulties in their way, the plucky and ingenious American is not easily discouraged by difficulties, and we expect to see this art, lost so long ago with Egyptian civilization, recovered by Americans.

We know of what we speak when we say that never before was there so much interest manifested by the people generally in the artificial rearing of chickens as at the present time. Numerous experiments are in progress in different parts of the country, the greater part being on a limited scale. If, however, these modest attempts are successful, more extensive operations will be undertaken. One party with whom we have conversed has already begun, in a small way, what he proposes to develope into a large enterprise. He claims to have at his command abundant capital to enable him to carry out his projects. His plans, we must confess, seemed to us entirely practical, and, if faithfully followed, we see nothing to prevent a successful issue. And yet it still remains true that

"The best laid schemes o' mice and men
Gang aft agiee."

We shall take pleasure in keeping our readers informed in regard to these various schemes. There is room in the United States for a great many large poultry farms. This is a big country—bigger than it is possible for the most of us to realize. There is no immediate danger of glutting the market by overproduction. That has been the fear of some timid people for years, but prices are still remunerative. A very effective safeguard against overdoing the business is the fact that the artificial rearing of fowls is really a *skilled industry*, and therefore only a comparative few will ever succeed in the business. There never were before so many incubators sold per week and per month in the United States as at present.

Horticulture.

Kitchen Garden—March.

Preparations should at once be made for planting early potatoes. In cutting the seed we try to get one or two good eyes with as much depth of potato as possible, rejecting the small cluster of eyes at the point. The part rejected would probably give the earliest returns, but, unless the stems were reduced in number, the potatoes would be small. This is the general belief, but I have never seen the matter tested. I intend to "forward" a few hundred sets in pots immediately—one half taken from the points of the potatoes and the remainder from the middle—thinning all to single stems, and note the comparative results as to earliness. Potatoes forwarded under glass will generally be ready a full month earlier than the rest of the crop, so that they can be planted on the celery ground or wherever a late crop of any kind is to be taken.

The best plan, *for the garden*, is to manure broadcast with well-rotted manure. After plowing and harrowing, open drills with a one-horse plow 2½ feet apart and plant 15 inches apart in the row. To keep the right distance the horse will have to be led. Cover with plow or hoe and level with the harrow.

It is seldom that any crops besides peas and potatoes can be sown or planted this month, but, if the ground can be got into good condition it is very important to sow onion seed early and also to plant the sets. Sow early Spinach. Make preparations for work to be done next month. The mixing of fertilizers with each other and with earth is well worth attending to. Dry earth is generally recommended, but there should be moisture enough in it to decompose the manure. Equal quantities of earth and fertilizer, by measure, is probably the best proportion.

There should also, if possible, be a large compost heap out-doors. A year ago I got out a large quantity of swamp earth, made a rectangular heap of it about 4 feet high and put a covering of manure on it perhaps a foot in depth, then turned the whole, leaving it the same shape as at first. Occasionally it would get a few barrels of soot or plaster, some bags of guano and bone, and, I believe, it got a second coat of barn-yard manure. It was turned three or four times altogether in the course of the summer, and by fall it was in very fine condition. I am aware that some of your farmer subscribers object to carting the farm around in that way, but it is a grand thing for the garden. We want something that will act quickly when applied, and we want to have manure in reserve for our greater variety of crops.

Spring sown cabbage, cauliflower and lettuce must now be gradually hardened off preparatory to setting out. A second lot of tomatoes should be sown to come in between the early and the late crops. A strawberry bed should be made each Spring, and the earlier the better if the ground is in order.

Provide seeds and tools in time. Have found that wheel-hoes and other implements that work only in clean and well cleared land are of no use in our stony ground.

Get ready the flower-beds and finish up all pruning. Provide bean-poles and pea-brush, where the tall varieties are grown. We think, however, that all tall varieties of peas should give place to the dwarf marrowfats and the same with tall varieties of every thing of which dwarf varieties may be had. JOHN WATSON.

Commercial Horticulture on the Peninsula—Its Progress and Possibilities—No. 4.

The increase of facilities for rapid transportation to market soon had the effect of attracting the attention of the Peninsula fruit growers to the culture of the small fruits, and particularly of the strawberry. Almost every neighborhood had its strawberry fever, which, in most cases, resulted in a few growers hanging on while the majority abandoned the strawberry, with lighter purses and increased experience. In some localities, particularly in Kent Co., Delaware, and Wicomico and Somerset Cos. in Maryland, the growers found their soil peculiarly adapted to the profitable culture of this fruit, and there it has grown to large proportions. No plant in cultivation varies so readily with the soil and location as the strawberry. I have had Wilson's Albany on high loamy land in Kent county which was good for seventy-five bushels of corn per acre, and I never could get over 1500 quarts per acre. I have seen the same variety grown on land in Somerset county that I did not believe was good for thirty bushels of corn, and yet I was assured that the crop of berries was over 5,000 quarts per acre. The principal reason for this difference, I believe, lay in the fact that the land used in Somerset county is flat and low, and water

is found always within a few feet of the surface.

When it is remembered that, for the best success, the strawberry must have plenty of water, and that its feeding roots have been traced over five feet in length, the reason of the success of the strawberry in the flat white-oak soils of Somerset becomes apparent. The same kind of soil, and similarly located, is found along the bay-shore of all the counties bordering on salt water, south of the Chester river; but the location of the Somerset lands, bringing their crop into market but little behind the Norfolk berries, will always give them the advantage of the growers further up the Peninsula.

Nature always has her compensations. These low flat lands, so admirably adapted to the strawberry, can now probably be profitably used for peaches like the lighter loams of the upper counties, and I think most growers of peaches in the lower counties will agree with me. When well drained, these lands are, however, well adapted to the apple and pear, and particularly to those much neglected fruits the quince and the plum. I have long thought that both the quince and the plum would be found very profitable in these "pipe clay" lands, as some call them. On the line of the Eastern Shore Railroad, not far from its terminus at Crisfield, I noticed from the car windows a small orchard of quinces which fully confirmed my previously formed opinion of the suitability of this soil for this fruit. I happened to pass when the fruit was ripening, and though the number of trees was not large the profusion of fruit and the apparent health of the trees was a sight worth going far to see. I have never heard the name of the grower, but his example did not seem to be extensively followed.

That the plum will grow equally as well I am sure, and so long as we have curculios just so long will plums be a profitable crop to those who properly attend to their trees. So far as I have observed, there are no curculio-proof plums that are worth much. In Kent county, Md., the German prune is more certain to escape than any other plum of good quality. The best plan I have ever observed for getting good annual crops of plums is to follow the long approved practice of jarring the trees every morning from the time the blossoms fall until the fruit is about grown, and destroying all the insects that fall; and in addition to this keep the land in grass and make a good pasture of it. This last practice will frequently insure fair crops without the jarring, but both together are best. The black knot fungus must be watched and cut away on the first sign of its appearance.

The quince is one of the easiest fruits to cultivate when the soil suits. The principal enemy is the borer, which must be watched and guarded against just as the borer in the peach.

The advent of the Brandywine raspberry was a signal for an outbreak of a fever for planting the raspberry, and immense plantations were made in all the northern counties of the Peninsula. On account of the long land carriage the raspberry has not been so largely planted in the lower counties, and in the upper counties I believe the culture is not so extensive as it once was. In these counties, growers have generally become satisfied tha tthe blackberry, particularly the Kittatinning, is in their land more profitable than either the strawberry or raspberry. So far as I am aware, neither the raspberry nor blackberry have been grown to any extent in the more southern counties. If we only could have a raspberry with the beauty and shipping qualities of the Brandywine, and withal fit to eat, (which that variety is not) it would be a great boen to our fruit growers. I have had little personal experience in shipping either raspberries or blackberries, but I believe the experience of most growers is that for distant shipment the improved varieties of Black Caps are more profitable than the red sorts, though the red bring more per box. For a near market, I am of the opinion that the "Hornet" will out-sell any other raspberry, but they are too large and tender for shipping. For distant shipment no raspberry has been found to excel the Brandywine. It is to be hoped that in some of the new and highly praised sorts will be found one equally as good in this respect and of fine flavor.

Of Blackberries, the Wilson's Early has the advantage of earliness, and the fact that it ripens up all at once, and can be shipped before the peaches interfere with their sales, while the Kittatinny is long on hand, though unsurpassed in size and quality. There are doubtless many native sorts on the Peninsula that are of surpassing excellence and might supersede them if some one would undertake to test them.

Some few growers have found grapes, particularly the Concord, a profitable crop. I regard the soil of the greater part of the Peninsula as well adapted to the successful growth of the grape. In the southern counties the ravages of the rose bug render them rather uncertain, but in the larger portion of Maryland and Delaware, grapes grow with vigor and fruit well. The great error I believe with the few growers who have attempted their culture for market has been too rigid an adherence to the system of spur pruning as laid down in most books on the subject. I am satisfied that the long cane removal system, practiced by German growers of my acquaintance, will give by far the best fruit. I am now adopting it after spurring both under glass and outdoors almost all my life. W. F. MASSEY.

Market Gardening.

An Address delivered by PETER HENDERSON, of N. J., before the Farmers' Convention of Central Maryland, Feb. 24, 1884.

For the past ten years market gardening has been less remunerative than it probably has ever been in this country, particularly to the growers in the vicinity of our large cities where transportation takes no longer than from three to six days from points south. In fact it is exceedingly doubtful if the crops of cabbage, beets, lettuce, onions, radishes, and other early crops in the hands of the different growers have, one with another, paid more than the actual cost of culture, and the wonder is how year after year the business of growing early stuff is continued. But every year it is expected to pay better, and thus they hold on, supported mainly by their late or second crops, with which the southern grown products do not interfere. The most important among the late crops of the market gardener in the Northern States is celery, which, to compensate for the loss in profit of the early crops, has for the past ten years probably paid a clear profit over all expenses of $300 per acre. Late cabbage probably pays half that while late cauliflower may average as great a profit as celery, but the crop is confined to special localities while celery can be grown almost anywhere north of Washington, where the soil is ten inches deep and thoroughly pulverized and manured. Other late crops, such as beets, turnips, parsnips, tomatoes, carrots, horse-radish, etc., are grown at profits varying from $50 to $300 per acre, but all early crops, either of vegetables or of fruits, have been less profitable in the vicinity of New York in the past ten years than at any time probably in the last half century, and I see no outlook for the better; both land and labor are cheaper in the Southern States, crops in most sections can be cultivated with less labor, and the rapid increasing facilities for quick transportation all tell against the Northern grower who relies on early crops. This, however, refers to large cities. In inland towns, particularly where vegetables or fruits are grown for use in the localities in which they are produced, the Southern crops do not much interfere, as they are usually received in such condition as would not bear reshipment. So it is safe to say that the growing of either vegetables or fruits locally, for towns of from 5,000 to 50,000 inhabitants, is still and will likely continue to be a profitable business. Another branch of market gardening is often very profitable—that of growing fruits and vegetables for summer boarding houses or hotels. Many farmers are enterprising and energetic enough to go into this, and they usually make as much from every acre so devoted as from twenty-five or even fifty acres in ordinary farming, for from such customers they get retail prices and often high prices at that. The great difficulty in growing fruits or vegetables away from town is manure, for it is indispensable to the best results. No matter how good the normal condition of the soil may be, it will not long produce fine crops of vegetables or even fruits without manure. Stable manure, when it can be obtained, is best and it should be put on the land annually at the rate of not less than fifty loads or tons per acre. Stable manure is as cheap in my opinion laid on the land at three dollars per ton as bone dust or guano at $40 or $50 per ton. Our market gardeners in Hudson County, N. J., use at least 50 tons per acre annually and often harrow in, in addition, half a ton guano or bone dust, and when it is known that most of them yet pay $50 per acre rent annually, without a lease, thus costing for each acre $200 each year for manure and rent alone, and probably an equal amount for labor, it can easily be seen that unless every foot of land is made to tell the balance would soon be on the wrong side of the ledger. Yet in the face of this there is hardly a market gardener who has been in the business for twenty years but has made money, showing that the high manuring has paid in the past whatever it will do now in competition with the South. Certain it is that if it will not pay with this manuring it will not pay without it. Market gardening is largely carried on at Charleston, Savannah, Jacksonville and other points in Florida, in Norfolk, Va., and many other places south where there is quick transportation, and though much depends on soil and location and convenience in shipping it is certain that at the present time the returns are greater for the capital and energy invested South than North.

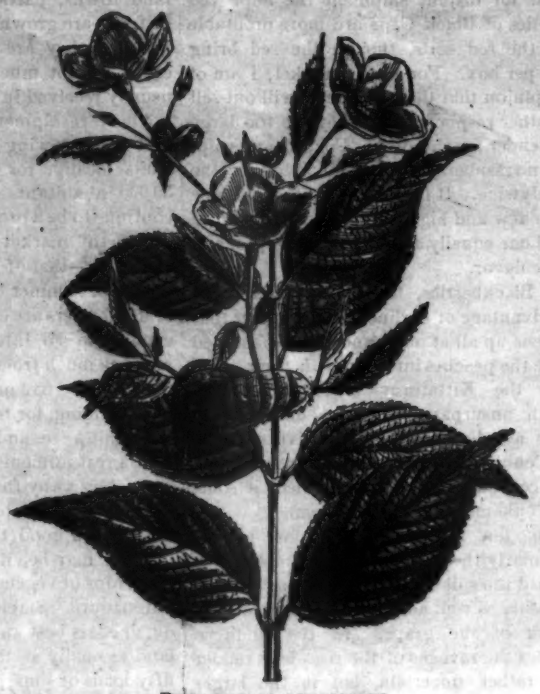
In a visit to Charleston, S. C., last February, I called on a firm of market gardeners, the Messrs. Noisette, who had long been customers of ours for seeds and plants, never dreaming for a moment from their intelligent manner of doing business but what they were white men. I was surprised to find on asking for them that the firm was represented by two modest looking colored men of middle age, who from a beginning with 11 acres in 1864, had in 1883, got to be owners of 75 acres of valuable land, right in the suburbs of Charleston, every acre of which was worked in vegetable and fruit crops in the most thorough manner. Hardly a weed was to be seen, and nearly every crop showed the greatest possible fertility, and no wonder, for they used 60 tons of stable manure and 1-4 ton of guano per acre. They had the biggest and best manure heap I ever saw in any market garden, having early learned the importance of that factor of success. They employ an average of 75 hands, or about one to each acre, which is about the same as is required at the North, though the wages paid—50 cents per day for women and $1 per day for men—is little more than half that paid North, and when it is known that their early products now sell for three times as much in New York or Philadelphia as the home grown vegetables and fruits, it can well be understood how profitable the business must be. I did not ask Messrs. Noisette what their profits on their 75 acres were, but I have little doubt it would not be less than $20,000 per year, and maybe $30,000, for when cabbage sells for 22 cts. and cauliflower 75 cts. per head, and when we know that 10,000 plants are planted on an acre, it is easily seen that market gardening must pay in the South. Of course every acre would not be so profitable, and occasionally a crop, from insects or other causes, may be entirely lost; but over all there is no question that the business, conducted in the masterly manner in which it was done by those two colored men, must be immensely profitable. Everything indicated that they were up with the times. They had the best ploughs, harrows and rollers that money could buy, and it was here for the first time, I must acknowledge, that I ever saw that valuable machine, the Manure Spreader, in use. We have probably 200 market gardeners in Hudson County, N. J., many of whom have been in the business for a quarter of a century, and I doubt if there is one of those implements in use among the market gardeners in the whole county. To be sure, few of them have over 10 acres and its value is less on small areas, though on grounds such as cultivated by the Messrs. Noisette, where 4,000 tons of manure is annually used on their 75 acres, the Manure Spreader will pay for itself many times in a season, not only from the rapidity with which it does the work, but also from the evenness in spreading and disintegrating the manure. The crops that Messrs. Noisette have found to be most profitable in Charleston, are strawberries, lettuce, cauliflowers and cabbage, though they grow largely of potatoes, tomatoes, cucumbers and melons.

In a paper short as this must be, no detail of the operations in market gardening can be given, nor indeed is there much to tell that has not already been given in the books on the subject.

There are, however, a few valuable implements of recent introduction that I might mention, such as the Acme Harrow, the Disc Smoothing Harrow, Improved Wheel Hoes and Cultivators, and the Manure Spreader before alluded to, the use of which may be made very profitable to the market gardener and is perfectly indispensable on any well cultivated farm of over 100 acres. In new vegetables the American Wonder pea, Early Summer cabbage and Golden Savoy cabbage, Snowball cauliflower, dark round radish and White Plume celery, are all now standard vegetables of great merit. The last named, "White Plume" celery, will open up an entirely new field in the culture of this vegetable as it possesses the wonderful property of self-blanching, and can be grown just as easily as cabbage, lettuce or beet crops. No earthing or banking up is required. It is planted like any other celery in June or July, 3 feet between the rows and 6 inches between the plants, and all the work required is simply to plow or hoe enough soil to each side of the row to straighten it up and the work is done, as the center stalks and leaves grow up as white as snow, blanched, crisp and tender as the ordinary celeries are by the slow and troublesome process of banking. Another valuable feature of this celery is that the leaves as well as the stems being white it will thus form one of the most ornamental of all vegetables for the table, and there is but little doubt that it will be grown for early use, say from October to January, to the exclusion of all other kinds, not only because it can be grown by the most inexperienced amateur, but the professional market gardener will save two-thirds in labor and produce a more salable crop. For the first two seasons it has sold from its fine appearance at double the price of the ordinary celeries.

Two Beautiful Flowering Shrubs.

PHILADELPHUS LAXUS.



RHODOTYPUS KERRIOIDES.

Messrs. Ellwanger & Barry, in their full and beautiful catalogue, which is, in reality, a hand-book of ornamental trees and shrubs, give the above engravings of two varieties of late introduction. They say of the Philadelphus, or Syringa (Mock Orange), that it is "an invaluable shrub. Of vigorous habit, very hardy, with large, handsome foliage, and beautiful white flowers, produced in the greatest profusion at the blossoming season, it merits a prominent place in all collections of shrubbery. Most of the varieties, except those of dwarf habit, form large-sized shrubs, twelve to fifteen feet high. They can, of course, be kept smaller by pruning. The dwarf sorts do not yield many flowers, but are such pretty, compact plants as to be very useful where small shrubs are desired. All of the varieties flower in June, after the Wiegela.

By planting the late flowering sorts, the season may be considerably extended."

P. laxus has very large, fragrant, white flowers, is very free flowering and of upright habit.

Rhodotypus kerrioides is a very ornamental shrub from Japan, with handsome foliage and large, single white flowers the latter part of May, which are succeeded by numerous small fruits.

Both these plants should find place in even the smallest gardens.

AGRICULTURE IN THE SOUTH.

A Second Letter From Florida.

BY TH. POLLARD,

[Ex-Commissioner of Agriculture of Virginia.]

In my last I omitted to speak of the noble St. John's river, with its striking scenery. It is navigable for 200 miles, to Enterprise, the county seat of Volusia, and to Lake Harney for small boats. It is a deep, placid river, and one can scarce tell which way the current is flowing. This, with its windings, reminded me of some celebrated lines from a countryman of mine in Virginia, Dick Johnson, a noted humorist. Speaking of Martin Van Buren's tortuosities, he said:

"He wired in, he wired out,
And left the people still in doubt,
Whether the snake that made the track,
Was going South or coming back."

Or words to this purport, for we are not certain whether we give the correct quotation The scenery on the St. John's, its banks lined with the palm tree or cabbage palm, the magnolia, laurel, live oak and the gray moss, pendant for eight or ten feet from the live oak, is strikingly picturesque. Some handsome residences adorn its shores, and a little back are numerous flourishing orange groves.

We were speaking of the profits of the cultivation of the soil, and specially of the profits of orange culture. Besides this, the pineapple, banana, the strawberry, melons, cassava for starch, and vegetable culture, particularly the sweet potato and tomato, for the early Northern markets, may be all made very profitable. The pineapple in South Florida is usually planted with 4,000 plants to the acre, but not so close where they require no protection. These sell at ten cents apiece; some of the larger varieties sometimes bring one dollar apiece. The strawberry is being much planted near the lakes, the swamps and "grass ponds," where the lands are stiffish. One farmer in this neighborhood told me, he, last year, from 1½ acres, sold $900 worth of berries and $300 worth of plants, which are in much demand. The first shipments occur the first part of February (this year they are later on account of the very dry weather), and bring in New York $1.50 per quart; very fine, early berries from further South have been known to bring $4 to $5 per quart. Bananas, which are frequently planted in the rows of the orange trees, may be made very profitable. Melons, which are not well fertilized and cultivated here, may be made to yield one to two thousand to the acre, and sell in Northern markets at 35 to 75 cents apiece. Sweet potatoes yield from 500 to 1,000 bushels per acre. We do not know what prices are obtained for them. They are set from runners from vines which have lived in the fields during the winter and their cultivation is very easy and cheap on these light lands, and their keeping and storing, which is done in the open fields, with slight covering of boards and "pine tags," is cheap and certain. We do not think they are planting the best varieties here. We have not seen the "Nansemond" in this region. Cassava is being profitably cultivated, and we are told Gen. Sanford is planting out 75 acres of it near Sanford, and factories for starch manufacture are being erected. We are not advised as to the profits of tomatoes, but are told they are made very profitable if gotten to Northern markets as early as they may be.

The productions of Florida are very numerous. Some writer has enumerated as many as *sixty*, and still some were omitted. Gen. Sanford is planting largely of lemons, and believes he will make them more profitable than oranges. One great advantage in this climate is that cultivation goes on almost every day in winter—plowing may be done after a rain, as soon as the horse can be hitched up. Horses require no shoeing, and the farm implements last a long time. Living is cheap; there is considerable game, particularly partridges, and many fish in the lakes. I may add here, though not exactly in place, that the debt of Florida is very small and the taxes correspondingly low. The former is little more than a million of dollars, which is being steadily reduced by the sinking fund, and besides, the State still has lands to dispose of.

Now, about the climate and health of Florida, of which we have expressed a favorable opinion in the former letter. The climate is very uniform, and in humidity, compares favorably with that of any other country The climate is not a hot climate in summer, though the summers are prolonged; the winters are not cold and freezing, but cool and bracing, particularly at night and morning. While we are writing the thermometer is between 70° and 80° Fahr., we suppose some days since it was 80° Fahr. in the shade, but the nights, after 12 P. M., are cool, frequently requiring two blankets, with cool mornings. Rainy, cloudy, disagreeable days throughout the whole 12 months are the exceptions, and fair, bright, sunny days the rule. The thermometer seldom goes below 30° Fahr. in the winter and above 90° Fahr. in summer. The official records show the average summer 78° Fahr., and for winter 60° Fahr. The daily constant ocean breezes in summer modify the heat, and a warm sultry night is almost unknown, particularly after 12 o'clock. A Virginia lady, residing in Florida for three years, tells me that she has never known it uncomfortably warm after 12 o'clock at night, and that the houses in summer are always pleasant; that the reflected heat from the sandy soils, from 10 to 12 o'clock in the day, is very hot. Yet I see inhabitants here, who tell me they never stop working in the day for the heat, and I have met with a Scotchman resident here, coming from the North of Scotland, who says he never stops for the heat, but works the whole day. Dr. Baldwin, of Jacksonville, gives the tabular statement that of 18 different stations in Florida for mean temperature during a term of years, including his own observation for 36 years. From this table it appears that the mean temperature for the entire year for the State, is for the spring, 74 deg. 94 sec.; summer, 81 deg. 93 sec.; autumn, 70 deg. 23 sec.; winter, 58 deg. 29 sec., and for the year, 69 deg. 82 sec. Dr. Kenworthy, of Jacksonville, in an address before the Medical Association, gives the following for the mean relative humidity for the cold months of the following places: For Cannes and Mentone (Italy), mean for November, December, February, March, 72.4 per cent.; for Duluth, Minnesota, (noted for dry climate,) 72.6 per cent.; Minnesota, Jacksonville, Florida, 68.8 per cent. So Cannes and Mentone exceed Florida by 4 per cent., and it must be remembered there is more humidity at Jacksonville than in many other portions of the State, particularly in the pine regions. (Florida: climate, soil, etc.; Dept. Agrl. of the U. S., 1882.)

As bearing on the climate and temperature of Florida, we quote the following from Mr. Spinner (of bank note fame), who remained in the State (at Jacksonville) twelve months. He says he was more comfortable in Florida, as regards excessive heat, than in any summer spent in Washington, D. C., or his home, Mohawk, N. Y. He gives the mean temperature for the year, 1880, at 76 deg. 10 sec.; mean minemum, 63 deg. 20 sec.; mean average, for 365 days, 69 deg. 95 sec. The highest temperature was 99° Fahr., July 11, the mercury standing at 90° but eleven times; lowest temperature 33° (November), and fell below 40° but eleven times in the year. (Rept. Bureau of Immigration of Florida.)

Dr. Wilson, U. S. Army, says "neither upon the southern coast of France, nor any where under the bright Italian skies, can a winter climate be found so equable and so genial to delicate nerves of most invalids, as can be enjoyed in our sanitary stations in Florida."

As regards the health of the State, Dr. Brinton, U. S. Army, gives this strong confirmation. He says: "All know how terribly arduous is the campaigning among the *everglades* of Florida, yet the yearly mortality from the disease of the regular army was only 26 per 1,000 men; the average of the army elsewhere was 35 per 1,000, while in Texas it rose to 40, and on the lower Mississippi to 45 per 1,000 men." (Florida: Climate, soils, etc.; Agrl. Dept.) The everglades are generally considered among the sickliest portions of the State. There is almost nothing to produce sickness in this State in the winter. The malarial disease, when it does occur, in summer, is, according to the statement of the surgeons of the U. S. Army who have been stationed here, of the mildest type, which accords with what the inhabitants here tell me. They say they frequently go along without resorting to quinine and the attacks disappear. I have made it my business to enquire of the people in this region (pine country) about their families having chills. They say it is rare. One farmer told me he had it in his family some years ago and has seen nothing of it since. Others have told me that they have never had it in their families. The Virginia lady, to whom I have referred, who has resided in this county three years, states to me, that she has in that time, in her neighborhood, heard of only one case of intermittent fever and one of pneumonia.

Catalogues Received.

Mr. John Saul, Washington, D. C., sends us his Plant Catalogue for 1884, filled to overflowing with new and choice things and embellished by an accompanying plate of moss roses.

Mr. R. J. Halliday's catalogue includes all garden supplies, plants, seeds, tools, rustic ware, etc, and is illustrated by many new engravings, many of them very striking and handsome. The work is probably the most extensive catalogue ever produced in Baltimore.

The American Farmer

"O FORTUNATOS NIMIUM SUA SI BONA NORINT AGRICOLAS." . . . . . *Virg.*

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*** Subscribers who have minerals, ores, marls, fertilizing materials, or other substances, will be advised through our pages, by competent chemists, as to their composition, uses and value, by forwarding specimens to this office, *expressage or postage prepaid.* Questions as to application of chemical science to the practical arts will also be answered.

*** Persons desiring information or advice on diseases or injuries of domestic animals, will receive replies from a competent veterinary surgeon, by giving a plain statement of the symptoms, etc.

☞ At the office of THE AMERICAN FARMER are located the offices of the following organizations, of each of which its proprietor, Wm. B. Sands, is secretary:

Maryland Horticultural Society.
Maryland Dairymen's Association.
Maryland State Grange, P. of H.
Agricultural Society of Baltimore Co.

BALTIMORE, MARCH 1, 1884.

Additions to Clubs.

Our friends are reminded that additions may be made to clubs at any time, and as March is a suitable month for the purpose, we trust they will omit no opportunity to enlarge our circulation.

Butter Test of Jersey Cow Princess 2d.

As noted in our last issue private tests of Mr. Samuel M. Shoemaker's celebrated cow Princess 2d had been very satisfactory, the result of one week being 26 lbs. 8 oz. of butter fit for market. The official test began at 7 P. M., on February 20th, Mr. John V. N. Willis, of New Jersey, having been appointed by the Jersey Cattle Club to conduct it.

The cow was milked three times every twenty-four hours, at 8 and 11 A. M. and at 7 P. M. Each milking was kept separate and the cream of every three milkings churned on the dates given. The butter was well worked before being weighed, and the weights given are those of the butter as salted, ready for market, the salting being at the rate of one ounce to the pound.

The creamery in which the milk was deposited was sealed and secured by a lock and chain, Mr. Willis carrying the key continually and always locking and unlocking the creamery himself. Mr. Oscar Ricklefsen, manager of the Burnside Park Herd, and Mr. Martin Dorsey, herdsman, were present at each milking, and join with Mr. Willis in an affidavit before a magistrate as to the correctness of the returns.

Princess 2d weighs 945 lbs., and is a cow of wonderful appetite. During the test she was fed six times daily, and consumed per day the following: 35 lbs. cut clover hay, 48 lbs. bran steamed, 35 lbs. carrots and beets, 12 lbs. oat meal, 6 lbs. corn meal and 6 lbs. oil cake meal. In the fifth day of the test there was some digestive derangement which, though only slightly affecting the milk, reduced the butter product of three milkings more than a pound below the average.

The summary as sworn to is given below:

Statement of amount of milk and butter produced by Jersey cow Princess 2d, 8046 A. J. C. C. H. R., owned by Samuel M. Shoemaker, Esq., Burnside Park, Baltimore County, Md., for seven days, beginning on the evening of February 20, and ending at noon, February 27, 1884.

Date of milking.		Weight of milk.	When churned.	Salted butter ready for market.
Feb. 20,	7 P. M.	15 lbs. 12 ozs.		
Feb. 21,	8 A. M.	15 " 9 "		
"	11 A. M.	15 " 8 "	Feb. 22,	4 lbs. 3 ozs.
"	7 P. M.	15 " 8 "		
Feb. 22,	8 A. M.	15 " 6 "		
"	11 A. M.	15 " 11 "	Feb. 23.	4 lbs. 1 ozs.
"	7 P. M.	15 " 10 "		
Feb. 23,	8 A. M.	15 " 7 "		
"	11 A. M.	15 " 10 "	Feb. 24,	4 lbs. 2 ozs.
"	7 P. M.	15 " 11 "		
Feb. 24,	8 A. M.	15 " 5 "		
"	11 A. M.	15 " 7 "	Feb. 25,	4 lbs. 0 ozs.
"	7 P. M.	15 "		
Feb. 25,	8 A. M.	14 " 8 "		
"	11 A. M.	14 " 8 "	Feb. 26,	3 lbs. 0 ozs.
"	7 P. M.	15 "		
Feb. 26,	8 A. M.	15 " 12 "		
"	11 A. M.	16 " 1 "	Feb. 27,	4 lbs. 3 ozs.
"	7 P. M.	15 " 14 "		
Feb. 27,	8 A. M.	15 " 12 "		
"	11 A. M.	14 " 13 "	Feb.	, 4 lbs. 1 oz.
Total in 7 days,		323 lbs. 11 ozs.		27 lbs. 10 ozs.

The Agricultural College.

We have received a pamphlet, purporting to be "The report of the Board of Trustees" of this institution, but which, in effect, is another effusion of Captain Smith, or rather the same letter referred to in our last, somewhat diluted, and with the same talk about "an educated agriculture," whatever that may mean—but barring the discovery made, presumably, just as the letter was written, that agriculture is a "learned science." The trustees themselves are in the fix of the small boy whom the calf ran over—they have nothing to say!

The production is a curious one, with some quaint items concerning beds and pots and pans and other homely but indispensable utensils, but there is not one thought or suggestion worthy of serious attention. Its whole tenor is pensive and lackadaisical, unless at times it may be said to rise to the dignity of hysterical remonstrance, and its only and real point is: *We want more money!*

The fact is, and must be recognized by men of sense, this institution, a conspicuous finger post of imbecility and false pretense, standing almost within sight of the National capital, discrediting and retarding industrial education, is a college only in a Pickwickian sense, and with nothing agricultural about it in any sense at all, unless some old fields around about it—

"Wide, wild and barren everywhere"—be the agricultural part.

Another fact, evident to the plainest comprehension, is that Captain Smith has procured—by influences well understood—a position for which he has no fitness, and his situation is at once unfortunate and ridiculous. He knows nothing, he can know nothing about the theory and practice of agriculture. Nor were his teachers selected because they know more than he does himself. To style a concern so manned an agricultural school, is to bring agricultural science and agricultural teaching into deserved contempt.

General Jones was a soldier, Captain Parker was a sailor. Both were men accustomed to command, reputed disciplinarians, and supposed to possess certain executive force, but they soon failed. Captain Smith was a sugar-broker or buyer, and his claims of administrative skill were negatived still more quickly by the test—five months in charge having reduced the attendance of pupils from 35 to 20!

None of these callings fit a man to head an institution designed to train young farmers, and our agriculturists know it very well. Captain Smith reports he is trying to learn something about agricultural education by reading, by conversation and by correspondence. These are all good methods of acquiring knowledge, but neither, nor all of them can post up Captain Smith, so that any person busy about farming need trouble himself to know what Captain Smith's reading, conversation or correspondence reveals to him.

Yet despite deficiencies, Captain Smith shows no modesty in combating measures on which the farmers of Maryland have set their heart, with the hope, by aiding in their defeat, of benefiting his own weakling.

Memorials by the score, from almost every County of the State, resolutions from agricultural conventions, societies, clubs, granges, have poured in upon the Legislature, asking the establishment by the State of an Agricultural Experiment Station, where men of science may investigate for the benefit of the farmers and of the whole community, the problems which affect our agriculture and hinder its development. Captain Smith comes to the front and says, oh! no, gives us another $6,000 or $15,000 a year, and let us do that work here at our college; where, as the world knows, it has failed in its duty to do similar work for a quarter of a century, that it will not and cannot do it, and could not if it had fifty thousand dollars.

The Experiment Station may fail, as it has failed before, and as other measures for benefiting the agricultural interests have failed; it has been smitten in the house of its friends, and some whose earnest advocacy was expected have opposed it; but after other States have led the way, Maryland will follow, and, in due time, the demands of her intelligent farmers will be recognized. In the meantime they should see to it that this pretended agricultural college shall not benefit by this denial of their reasonable requests.

It can do, as for years it has done, nothing profitable. Its end is approaching; it must die; it is indeed, moribund now. More money spent on it is worse than wasted.

Captain Smith has already demonstrated—with the liberal money support it has steadily received from the State—his inability to make good his glittering promises of building up, or even to keep the institution out of debt; the United States government has stamped it with a signal mark of condemnation, by withdrawing its military instructor; its pupils, as few as they were, have abandoned it—the farmers cannot be cajoled nor scolded into sending their sons to such an institution; the agricultural organizations of the State have repudiated it again and again; **not one has ever raised its voice in its behalf;** succeeding Legislatures have withdrawn the State's support, its stockholders, including its earliest supporters, are asking the revocation of its charter.

It is time for the Legislature to foreclose the State's mortgage, to withdraw the U. S. land scrip fund (the $7,300 proposed by Captain Smith to be applied to salaries—*salaries first* ALWAYS) to ring down the curtain, and end the farce.

The State Grange and the Agricultural College.

Captain Smith, in his help-me-or-I-sink plea for an appropriation to the Agricultural (so-called) College, which the trustees adopt as the "full and correct report of the condition" of that institution required to be made by law, garbles a committee report made to the State Grange, quoting it as supporting the college, and asserting as we are informed, in an oral application to the Ways and Means Committee, that this report was endorsed by the Grange.

This was a misstatement. The Grange *neither accepted nor adopted this report*, postponing action for one year.

This committee was raised to ascertain whether the college was suitable for transformation into an Experiment Station, and it reported it **was not suitably located for that use.** This conclusion, the gist of the whole report, is, with great ingenuousness, omitted by Captain Smith and the remainder used as an endorsement of the fitness of the institution to do a work which it is unequivocally said it cannot do.

The State Grange Master, in a speech on the floor, urging that the college ought to be rescued from its present useless condition and that the grange should aid in accomplishing its reform, said with marked emphasis, "It has been a disgrace to our State."

And it is! And the only way to reform it, to make it a credit to the State, is to tear it down and build anew; to scrape off the barnacles which find place and home on the abused old hulk; to put the helm in able, disinterested and conscientious hands.

But this means the exaltation of the public good above private interests; the activity of those who act from patriotism, rather than the zeal of those seeking personal advantage—a millenial result not to be expected.

Documentary Evidence.

In our last issue, to the question "Why cannot the Agricultural College do and why does it not do all proposed to be done at an Experiment Station?" we replied, it was because it was and had long been incompetent to do it, and that it would always remain so whilst under its present monstrous organization and government.

This is a sufficient response, but as there are some persons who want direct testimony, we give some documentary evidence, which is conclusive.

The clear headed founders of the college, ahead of their generation, proposed to begin there that experimental work now so conspicuously useful to the farming class, and provided in its establishment for what was really an Experimental, though designated as a Model, Farm. The charter makes it "the duty of the said Board of Trustees, to order and direct to be made and instituted on said Model Farm *annually*, a series of experiments upon the cultivation of cereal and other plants adapted to the latitude and climate of the State of Maryland, and cause to be carefully noticed upon the records of said institution, the character of said experiments, the kind of soil upon which they were undertaken, the system of cultivation adapted, the state of the atmosphere, and all other particulars which may be necessary to a fair and complete understanding of the result of said experiments; * * * the said Board of Trustees shall, at every session of the Legislature, present in printed pamphlet form a full and correct report of the condition of the said Agricultural College and Model Farm, and the condition or final results of all experiments undertaken as provided for in the foregoing section."

That duty has been totally, we might say systematically, ignored; but a few years ago, on our pointing out the default, a report was made by the Professor of Agriculture, and it illustrates the precision, nice discrimination, as well as the accuracy and profitableness of such carefully made experiments. We submit an extract, as follows:

"I have seeded 21 acres of wheat, *experimenting* with three standard fertilizers procured from E. B. Whitman, Baltimore, namely: British mixture, phosphate of lime and bone dust. The wheat was drilled in, seeded with timothy and clover and rolled down in the spring. The result will be reported after harvest. The present prospect

for a good crop is very promising. There are 15 acres seeded in oats and clover, fertilized with phosphate of lime, in fine condition. This year's corn crop of 56 acres is top dressed with 1,000 bushels of shell lime, and fertilized in the hill one-third with ammoniated dissolved bone, from John Merryman & Co. One-third ammoniated superphosphate from Maryland Manufacturing Company, and the other third with bone compound from Mr. Moore, Georgetown, D. C. I have planted 12 barrels of Irish potatoes on land thoroughly prepared, top-dressed with stable manure, and fertilized in drill with Whitman's special potato fertilizer. * * * I have also *experimented* with the following seeds received from the Agricultural Department, all heavily manured and well put in, namely: a very excellent quality of oats, barley, mangold wurtzel, sugar beet and corn. The result will be reported."

It is our stern, but painful duty to add the important further reports promised have not yet been made, and that the farmers of the State are dejected that they are so long suffered to bear the losses consequent upon ignorance as to which of Whitman's fertilizers "came out ahead," and what was the outcome of the promise of the novel and highly valuable "experiment" in which "the wheat was drilled, seeded with timothy and clover and rolled down in spring."

Should not the Legislature be willing to give some $5,000 to $15,000 a year to allow of the further prosecution of these invaluable investigations, and save the fearful expense of an Experiment Station, with a man at its head of tried capacity, like a Sturtevant or a Dabney?

A NUMBER of stockholders in the Agricultural College have applied to the Legislature to annul its charter and appoint a commission to wind up its affairs, sell the property and divide the proceeds ratably among the owners. Others who agree that the College does not do the work its founders expected and who will unite in this application may find blanks for the purpose at THE AMERICAN FARMER office.

The stock has been much scattered, by deaths, failures, etc., so that it is difficult to ascertain by whom much of it is controlled.

Not very remotely the edifying spectacle was presented of some of the Trustees seeking to buy, or actually buying up stock to perpetuate their own control.

The Grange.

National Lecturer's Communication.

[Subject for Subordinate Granges for March.]

Question—Is a farmers' organization necessary? If so, why and for what purpose?

Suggestions—At this period of the so-called progressive age we find nearly every class and interest well organized for their own protection and advancement. Business and capital is not only well, but thoroughly organized, which gives it influence and power to control its own advantage, and to a large extent the general interest as well. No unorganized class can withstand the force of organized effort and must sooner or later succumb to the force of organized power, and submit to the wishes and mandates as dictated by organization.

Farmers' organization is therefore an absolute necessity, in order to meet organized power on equal terms, and be prepared to counteract its influence when it assails the agricultural interests or the farmers' rights. This not only shows the necessity, but also the reason why. We must organize for the purpose of maintaing our quality, to protect our homes and our interest, and to secure for the future those inalienable rights guaranteed to us by the laws of earlier days and save ourselves and our children, from the low and degraded condition into which the farmers of England, Ireland, Scotland and Wales have fallen through their unorganized condition.

As a rule, like causes produce like effects, in this as in the old world, and the American farmer cannot expect to escape from a like fate of the farmers in the countries named, unless we organize and work for ourselves, for our own interest and for self-protection.

Maryland Granges.

FRIENDSHIP GRANGE, No. 25, Howard County—The following officers were duly installed by Worthy State Master H. O. Devries, ably assisted by Past Master J. T. Ridgely, at its regular meeting of the 16th ult., bad weather preventing an earlier installation: M., L. M. Shipley; O., B. F. Hess; L., F. C. Merceron; S., Geo. Streaker; Asst. S., H. C. Hobbs; C., A. C. Devries; T., C. A. Hobbs; Sec., H. E. Challis; G. K., R. Burgess; Ceres, Sister L M. Shipley; Pomona, Sister C. A. Hobbs; Flora, Sister J. T. Ridgley; L. A. S., Sister Cora Devries. Brother H. O. Devries gave us an interesting and instructive address upon the occasion.

Friendship Grange has a membership of over eighty, among whom is our Worthy State Master who is endeavoring to create a greater interest in the noble work of our Order. The recent change in the financial management of the State Grange agency elicits universal commendation, its greater benefits being seen and fully appreciated.

H. E. C., SEC.

SUDLERSVILLE, No. 155, Queen Anne's County, elected the following: M., C. H. R. Merrick; O., Josh. H. Seward; Lec., A. J. Gadd; St., Geo. I. Buss; Asst. St., J. M. Sudler; Ch., Jas. Merrick; Tr., J. B. Felton; Sec., A. E. Sudler; G. K., Lawrence Hart; P., Miss Addie Morgan; F., Mrs. Jas. Merrick; C., Mrs. Eugenie Dudley; L. A. S., Mrs. M. S. Pardee. Delegates to County Grange, viz.: S. G. Walls, Finley Roberts, Thos. J. Tucker and Jas. Merrick, and Sisters, Mrs. Jas. Merrick and Addie Morgan.

BALTIMORE COUNTY GRANGE will hold its regular quarterly meeting on Saturday, March 8th, at 11 A. M., in the Young Mens' Christian Association Building, cor. Charles and Saratoga streets, Baltimore.

EASTERN STAR, No. 5, Frederick County—M., Charles F. F. Howard; O., Leonard Mullinix; Lec., Dr. D. E. Stone; Ch., Geo. F. B. Crumbaugh; St., Samuel Dutrow; Asst. St., Raymond C. Reich; Tr., Geo. H. Rizer; Sec., John T. Shields; Asst. Sec., Jas. A. Brown; G. K., E. L. Derr; L. A. S., Mrs. Mary Markell; C., Mrs. Geo. H. Rizer; F., Mrs. Wm. Miller; P., Mrs. Geo. W. Smith.

A Venerable Patron.

The Lecturer of the Indiana State Grange sends the following sketch of a patron of that State to the Grange Bulletin:

Polly Starns was born June 3, 1794, in North Carolina—county not known. At the age of three years she removed with her parents to Hawkins Co, East Tenn., remaining there until 27 years old. She at the age of 16 was married to Adam Helton, and with him removed to Lawrence Co., Ind., in 1820, and is to-day living upon the body of land purchased by her husband on their arrival. Her husband died in 1843, forty years ago, during which period she has remained a widow. She is the mother of four sons and ten daughters, all of whom lived until they were married, but two sons have since died. She has 125 grandchildren, 300 great-grandchildren, and quite a large number of the fourth generation, the exact number not being known.

On her journey from the South to Indiana, she rode on horseback one-half day, making the rest of the journey on foot, driving 10 milch cows and knitting a pair of stockings for herself as she walked.

Besides her own she reared up five orphan children, but never called a physician to any of them.

She has been a member of the Old School Baptist Church for 60 years, and is a member of Hickory Grove Grange, No 1855. She is devoted to the interests of our Order, and is yet vigorous in mind although in her 90th year.

She is loved and revered by all her numerous relatives. This sketch is from the facts as stated to the writer by Grandma Helton herself.

Home Department.

RECREATIONS OF A COUNTRY HOUSEKEEPER—No. 4.

Our Little Talk on the Subject of Sister Mackey's Little Speech.

"You don't tell me, my times's up?" implores Mrs. Mackey, seeing that our Moderator had her watch out and was giving her the nod, "and me with such a full head of steam on,—too bad! It's like catching a whole cask full into a tea cup, to pour out all I've got to say in my special pleading for housemothers in ten minutes—tell you, I hadn't fairly got started," laughing heartily as she unrolled her work and joined our circle.

"I was sure that would be the first difficulty," says Mrs. Ingleside in her earnest, flat-footed fashion, "men-lawyers are long-winded enough; but women advocates—oh, dear!"

"Never would get to the *brief*, you think?" trinkles the mirthful Dolly, provokingly; or rather Dolly's perpetual puns would have been provoking, had not her inveterate good humor, bright and natural as the sunshine, and withal as irrepressible and cheery and unobtrusive, made her everybody's favorite.

"Now, my dear," interjects Mrs. Ingleside, "first thing in this society, I vote we embroider a band with this motto: 'Too Smart for any Use,' and bind it round that head of yours, Dolly Meggs."

Dolly's "Hear! hear! suggestion for the good of the Order," was interrupted by congratulations to our speaker.

"Well, whatever more thee has to say, friend Mackey," our Moderator broke in, can be said within the circle, thee knows. No restriction here."

"Quite as well, and better," returns Mrs. Mackey, "little running talks are ever so much nicer than set speeches, especially about household matters."

"A cute little ruse of ours to put the silent (!) sisters on a level with the speakers!" and Dolly tips the wink to Daisy.

"What party of men would ever think out such a little sly, sensible, satisfactory arrangement, I'd like to know?"

Deborah Fry cleared her throat and running her knitting needle under her sheer muslin cap, observes thoughtfully: "I think thee made a good point there, friend Mackey. 'To Look Before and After.' Thee has made up a first-class house motto out of Mr. Shelley's bit of sentiment. But doesn't thee think it might make its domestic requisition on others beside the male portion of the family, and the benefit of its demand be felt by the house-maid as well as by the house mother?"

"I do, indeed," rejoined Mrs. Mackey, hastily. "I was going on to make that application if *thee* hadn't put me 'under the hammer' so soon. I really do think that there is nothing so well calculated to bring order and, consequently, harmony and comfort into a home as a strict attention to that little *fore and aft direction* on the part of each individual member. It makes fair sailing, sure as you are born."

"Indeed you are right there," adds Mrs. Brinkley, with emphasis, "and it's nothing but habit after all. Not a thing else. The mighty difference between order and disorder is just exactly the difference between the good practice of putting everything you handle right back in its proper place and the villainous habit of throwing it down, or leaving it just where you happen to use it. And the one habit is acquired quite as readily as the other."

"O do you think so," ejaculates mild Mrs. McCaul, with a warmth of interest that brought quite an ebullition into her placid little simmer, "I wish I could believe it. I suppose—if—you—begin—in—time."

"Yes, my dear madame," thrusts in Mrs. Bunkley, "and the 'in time' for all such beginnings is the very first day you set up housekeeping. I know from experience what the working of this thing is *in both directions*. During the first year of our married life there was no end to the trouble we had from laxity and want of system. Everybody about the place that wanted anything—hammer, nails, saw, gimlet, auger, what not—would just come in and help themselves with or without your leave, and, in all probability, that was the last you would ever see of that thing! Down it would be thrown just where they chanced to have it, and the consequence was, the next time that tool was wanted the whole house and plantation had to be turned upside down from one end to the other."

As Mrs. Bunkley stopped a moment in rummaging her memory for an instance in point, two or three of the ladies took the occasion to remark simultaneously upon the correctness of the picture as applied to their individual households.

"Nobody knows what becomes of the things at our house! Any little darkey will run in there, pick up the nails and hammer and say the men sent 'em! I tell Marcus it's scandal on the reputation of any place. I gave *Mister* Dick's head a good crack this morning with my nice little hammer for leaving it under the walnut tree."

Mrs. Pine broke in on Dolly's poser with her lugubrious little sigh: "Yes, indeed, and its just exactly so at our place." This corroboration went round the room with amusing variations until, strange as it may seem, not less than five out of the nine represented household present, had echoed poor Mrs. Pine's plaint, "*Just exactly so at our place.*"

"Sorry to hear it, sisters," resumed Mrs. Bunkley, "I tell you, candidly, you'll never know comfort until you turn over a new leaf. We quietly came to the conclusion one morning that we would *not* stand this nuisance a minute longer. We just put our foot right down then and there. Mr. Bunkley sent for the whole posse and made them understand that from henceforth loose bind, loose-find business was put a stop to. Every man that lost a tool had to replace it, and every one that left a tool out when he came in had to go back for it 'if it was midnight.' After that we had no more trouble. One boy lost his supper and one man his 25 cents, I believe, but we never lost another tool. Then I turned the rule about and set it to work in the kitchen, and I tell you, ladies, it was a look 'after' to some advantage. Before that there was one perpetual bother. Everything that was misplaced "*got broken!*" "*Cat knocked it down!*" "*Dunno what 'tis!*" Now, if things are gone, or broken up, the servants have to replace them, and that's the end of the trouble. The beauty of the business is that the things are never gone now; never out of place."

"But the breakers and losers are always so full of excuses," Mrs. Pine ventures in a low voice to her next neighbor. Mrs. Bunkley catches quickly: "Never take excuses, madame! If you do, you'll never get anything else to take. No good administration accepts such counters, and another point, equally necessary, is, that there must be no 'let up' about this thing. If you wink at

it, you might as well go to sleep entirely. For I tell you, every little chap on the premises, if he isn't bigger than a first stalk, will take advantage if you show the least sign of relaxing or forgetting. You just have to be *inexorable*. And no matter what he's after or what he's got to do, make him come then and there and put whatever it is he's been using right back where it belongs."

"And could all their graded schools combined teach them a more invaluable lesson?" Mrs. Mackey rejoins, enthusiastically. "I call it a first class *family faculty*, this 'Looking Before and After,' and everyday of my life I am more and more convinced of the wisdom and comfort of being unrelaxing in its demands, as you say. There is is no good management without it, that's about the upshot of the matter, and it applies with equal significance to every department."

"That it does!" echoes Mrs. McCaul, with an earnestness so unusual that made the whole room smile. She positively snapped off her thread with quite a little jerk, as if the ebullition might really "come to a boil," presently, "and none know its value like those who are always suffering from the want of it. I was never so struck with the truth of it, often as it comes over me, as I was the other evening—the evening of Mrs. Mohl's party, when I walked in so abruptly on you, Sister Bunkley. I must tell you now, honestly, that visit was sheer curiosity. After my girls were dressed and off, I went into the room to straighten things a little—nobody about but Tiny to clean up. But such a room! Such a tangle of disorder as it was, I could not tell the end from the beginning, so I positively quit in disgust, and stepped across the field to see if a party turned everybody's house topsy-turvy as it does mine."

"I've seen the day when you might have found mine just in that condition," interposes Mrs. Bunkley, "Now Em and Grace understand that their room's toilet is as important as their own, and that it is 'no go' to party or anywhere until that is left in perfect order."

"Just as fresh and sweet, it was, as if dressed for the morning, and far more dressing than mine, these girls had done, too," and Mrs. McCaul sighed heavily. "And oh! such a saving of time as it is and of trouble to yourself and everybody else! No one could believe who hasn't tried it. This *back-hand dressing*, as my grandmother used to call it."

"Back-hand dressing? That's a good name for it, Mrs. Bunkley," Daisy remarks. Bill Arp speaks of "hind sight in contradistinction to foresight, and we can have a hind hand just as well."

"And O, what a nice, tidy, easy, cleaned-up world we would have if all the girls would just go and do likewise," and Mrs. McCaul drew another pensive little breath and leaned her head on her hand dejectedly.

"Now please, Mrs. McCaul, don't leave out the boys and the men. Their things make ever so much bother. I heard you say the other day, Aunt Debby, that a hat and coat hung up was order, and a hat and coat flung down was disorder. Now I don't mean Marcus, because one hat and one coat don't amount to much, but—"

"Yes, they do, Dolly. They amount to a principle. And a coat and hat, and a coat and hat multiplied by twos and threes, what does that amount to—in interest? Now there's a sum for your new HOME RULE OF THREE, Sister Ingleside!" and Dolly's laugh had a particularly merry ring, for at this moment her gratified eye caught sight of Mistress Ingleside coming up with a basket of sugar cakes, her little waitress behind her with tea-pot and tea-cups. "Very refreshing!" she exclaims, "I amend my amendment and vote for "nothing to eat," only when the session finds itself at—*Tabby's house!* which must be next time."

But neither tea nor tea cakes distracted taciturn Mrs. McCaul's newly aroused interest. Lifting her head from her hand, presently, she said, with a slow solemnity that made us all smile, "If I don't make—Bruce—hang—up—his—hat—when—he—comes in—'twill—be—because—there—isn't—a—a—peg in my house!"

"And if he don't do it right away, Mrs. McCaul, you mustn't be discouraged. Just keep *pegging* at him till he does," and Dolly hid her laughing face in her hands, for Mrs. Ingleside was shaking her finger at her and saying in a stage whisper, "*inveterate!*"

SISTER TARPLEY.

Periodicals on Building and Painting.—Tools on the Farm.

Messrs. Editors American Farmer:

If any of your readers contemplate building the coming summer, let me advise them by all means to subscribe for the *Builder and Woodworker*, and also *The Painter*. The ideas, which I feel satisfied they will get, will repay them many times. The *Builder and Woodworker* is published by Mr. Fred. Hodgson, New York city, and is replete with information on building, interior decoration, management of woods generally, and many fine illustrations of modern style dwellings and furniture. The *Painter* is published at Cleveland, Ohio, and well supplements the other. The illustrations are of a high class, and are colored, as near as printer's ink can, the actual shades intended to be represented. Perhaps there is a little too much about art interior decorations, etc., but I think not. Try them for the boy sand girls, and after a while you will begin to see the advantage of having a good-work bench and a set of carpenter's tools.

There is use every day on the farm for tools, they will pay for themselves the first year. And let the boys have the use of them even if you fail to find them in their places always. I practice what I presch, and I find in my carpenter's tools my greatest recreation. Between times during the last year, I built a smoke house and coal house, made farm gates, a plow, a sled, a dining-room table, plant stand, trelises, book case, whatnot and shelves, and small articles too numerous to mention. Get the tools and bench, some clear pine lumber, surfaced on one side, a few walnut and cherry boards of several thicknesses. Then go to the good woman of the house, and ask for further orders. If her eyes don't brighten we are much mistaken. Let me add that my tools also constructed a revolving clothes dryer for the yard, and a folding dryer for the house.

Garrett Co., Md. E. H. GLATFELTY.

HELP YOURSELF.—Learn to help yourself, and you will enjoy perfect independence. Men who can defy adverse circumstances, and can earn a living in any quarter of the world in which they are dropped down; who can roll up their sleeves, and set to work at almost anything that offers; and who can even sew on their own buttons, and make themselves a cup of tea when deprived of the help of womenkind, are the ones who are really independent. The most helpful women are kindest and truest; and as for a man, never trust him in any capacity if he has not within him the true spirit of independence, without which neither strength nor sweetness may be hoped for. In the battle of life there is but one way to succeed—fight it out yourself.

A coated tongue, with headache, bad taste in the mouth, a dull, drowsy feeling, are sure indications that your liver is torpid and that there is a collection of foul humor in the stomach. J. M. Laroque's Anti-Bilious Bitters quickly and effectually correct these evils. 25 cents a paper and $1 a bottle. W E. Thornton, Baltimore and Harrison streets.

Baltimore Markets—March 3.

Flour.—In moderate demand to supply immediate wants of local dealers, and quiet and steady, with ample offering. We quote as follows: Howard Street and Western Super at $2.75@3.25; do. do. Extra, $3.50@4.65; do. do. Family, $4 75@5 75; City Mills Super. $2 75@3.50; do. Extra, $3.75@4.65; do. (Rio brands) Extra, $5 75@6; Baltimore Winter Wheat Patent, $7; do. High Grade Family, $6 50; do. Second Grade Extra, $6 25; do. Third Grade Extra, $6; Fine, $3.50; Rye Flour $3.75@4; Corn Meal ₹ 100 lbs.; $1.30; Colbert's Excelsior Graham, $7.

Wheat.—The small lots of Southern arriving meet with a fair demand, and the market is steady. Good to prime samples sold at $1.13@1.14 for Fultz and $1 16@1 17 for longberry. Western ruled fairly active and a fraction low, closing quiet and easy. The closing quotations were at $1 08¾@1.08¾ for spot, $1 08¾@1 09 for March, $1.10¼@1.10¾ for April and $1 11@1 12¾ for May.

Corn.—Southern is quiet and firm with only small lots offering. Small sales of white were made at 58@61 cts. as to condition. Prime dry yellow is quoted at 59@61 cts. There is no disposition either to buy or sell Western Corn, and the market is dull and nominal. The closing prices were 59¾@59¾ cts. for spot, 59¾@59¾ cts. for March and 61½@62¾ cts for May.

Rye.—The market is quiet but firm. A lot of 200 bushels Pennsylvania sold at car at 70 cts.

Seeds.—Clover is dull and easy in tone. Good samples sold at 10 cts and an extra choice lot at 10¼ cts ₹ lb. Timothy is dull at $1.60@1.65 per bushel.

Cotton.—The offering is limited and the market is firm but quiet, with only a moderate demand. We quote as follows: Middling at 10¾ cts., low middling at 10¼ cts., and good ordinary at 9¾ cts.

Provisions.—The Western markets are easier, though prices are not lower. The local jobbing trade is fair. Packed lots from store are quoted as follows: Bulk shoulders, 8¼ cts.; clear-rib sides, 10¼ cts; bacon shoulders, 9 cts; clear-rib sides, 11¼ cts. Hams, sugar-cured, 14@15¼ cts. Refined Lard, in tierces, 10¼ cts. Mess Pork, $18 ₹ bbl. for old and $19 for new.

Dressed Hogs.—Under a more liberal supply the market is dull and easy at $8@8.25 ₹ 100 lbs., the latter for select smooth lots.

Butter.—Really choice stock is in good demand and for such the market is firm. Medium and low grades are dull. We quote prime to choice New York State at 26@30 cts.; fresh Western packed choice at 19@23 cts., do. good to prime at 16@18 cts, Western rolls at 15@20 cts., per lb., and nearby receipts at 15@20 cts. ₹ lb.

Eggs.—There is an active demand from out of-town dealers and the market is firm at 19@20 cts. ₹ dozen for fresh.

Tobacco—*Leaf*—There is a slight increase in the receipts of Maryland, and a better supply is looked for now as the season advances. The demand for the better grades is quite good, and the market is firm at full prices. The stock of common has been nearly all taken up on recent orders, and the available supply now in the hands of factors is small. The trade in Ohio leaf is very small and the market is quiet and firm. We quote Maryland inferior frosted $3@3; do. sound common, $3.50@5; good common, $5 50@6.50; do. middling, $7@8.50; do. do. good fine red, $8.50@11; do. fancy, $12@14; upper country, $5@15; do. ground leaves, $3@8; Ohio, inferior to good common, $4@6; greenish and brown, $5@7 50; do. medium to fine red $7@10; common to medium spangled, $7@10; do fine spangled and yellow, $11@16; do air-cured medium to fine, $6@14.

Live Stock—*Cattle*—The market has been very slow to-day, and prices generally off a shade, quality considered, as compared with last week's figures. We quote as follows: Best, $6.75@7; that generally rated first quality, $6 37½@6 12½; medium or good fair quality, $4@5.25; ordinary thin Steers, Oxen and Cows, $3 50@4. Extreme range of prices, $3.50@7. Most of the sales were from $5@6.75 per 100 lbs.

Milch Cows.—Good Cows sell well at $45@60 per head and common are dull at $35@45 wholesale.

Swine—The supply is rather light this week, but is seems to be fully equal to a rather limited demand. The quality shows a marked difference in most of the pens, more common light Hogs being among the offerings. We quote common to fair Hogs at 8¾@9 cents, and the better grades 9¼@9¾ cts per lb. net.

Sheep and Lambs—The receipts are fully equal to a very moderate demand, trade being slow, with no outside demand. We quote common to fair Sheep at 4@5 cts., fair to extra 5¾@6¾ cents per lb. net, and choice a shade higher.

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EVERGREENS, &c.

THE undersigned offers an extensive stock of well grown FRUIT TREES—new Pears, new Peaches &c. A large stock of

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One 300 Egg New Centennial Incubator, also a No. 3 Brooder, capacity 200 chicks. Original cost of machines $95, and they have been run but part of last season. Offers of cash or chickens, ducks, etc., will be received. For a bargain write me before April, if not sold then I will run it another season.

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Some finely rooted Concord Vines for sale, price: 2 years old $4 per hundred, 75 cts, per dozen; 1 year old $3 per hundred, 65 cts. per dozen.

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How to keep fowls healthy, prevent gapes, prevent or cure cholera will be told by me to any one inclosing only ten (10c.) cents, with *plain address*. Ingredients found in almost every Farmer's house. It has never been known to fail in the first instance where directions were followed. I have raised chickens for twenty years and never lost one by gapes, and cholera made its appearance *only once* about eight years ago. Address,

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The property consists of 205 acres, and will be sold in whole or part.

It lies between the Severn River, a navigable salt water Creek, and the property of the United States Navy, (the old Strawberry Hill place), its other boundary being a straight line.

It is improved by a large and commodious new frame house, and has several other fine building sites upon it, one, the most beautiful site in the county.

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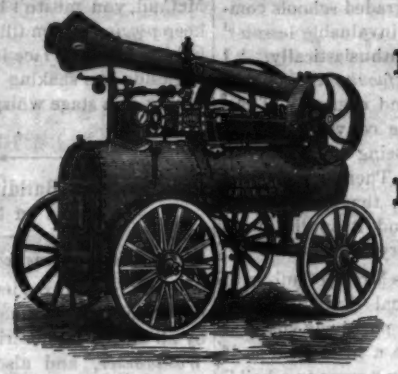

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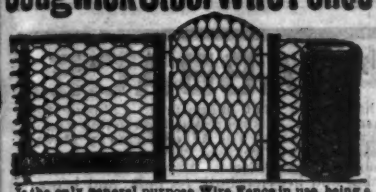

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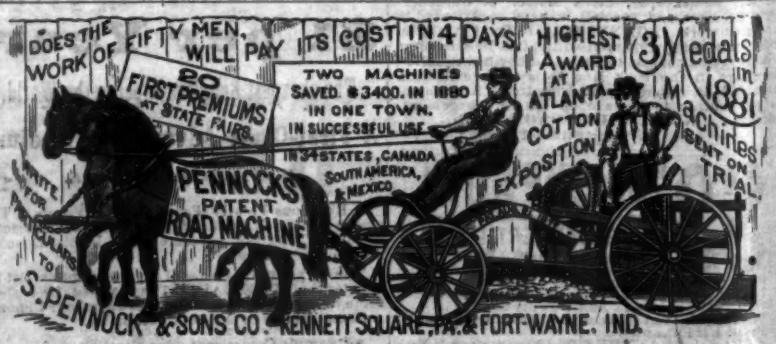
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